DOCUMENT RESUME

ED 445 855 RC 022 640

AUTHOR	Dewees, Sarah, Ed.; Hammer, Patricia Cahape, Ed.
TITLE	Improving Rural School Facilities: Design, Construction, Finance, and Public Support.
INSTITUTION	AEL, Inc., Charleston, WV.
SPONS AGENCY	Office of Educational Research and Improvement (ED), Washington, DC.
ISBN	ISBN-1-891677-05-5
PUB DATE	2000-00-00
NOTE	128p.; For individual chapters, see RC 022 641-647.
CONTRACT	RJ96006001
AVAILABLE FROM	AEL Distribution Center, P.O. Box 1348, Charleston, WV 25325-1348; Tel: 800-624-9120 (toll-free); email: aelinfo@ael.org; ($18.00).
PUB TYPE	Books (010) -- Collected Works - General (020)
EDRS PRICE	MF01/PC06 Plus Postage.
DESCRIPTORS	*Community Support; Construction Programs; *Educational Facilities Improvement; Educational Facilities Planning; Elementary Secondary Education; *Rural Schools; *School Buildings; School Community Relationship; School Districts; School Support

ABSTRACT

While the condition of rural school facilities varies across the country, most rural school districts face similar issues as they consider new facility construction, renovations, or additions. These issues are how to gain public support for funding, how to make the best use of local resources, how to design buildings that meet a variety of community needs, and how to design facilities that optimize instruction and use of technology. This book contains seven edited papers presented at the National Working Conference on Improving Rural School Facilities, held in Kansas City (Missouri) in March 1998. The papers are: (1) "Trends and Issues Affecting School Facilities in Rural America: Challenges and Opportunities for Action" (Sarah Dewees, Glen Earthman); (2) "Financing Facilities in Rural School Districts: Variations among the States and the Case of Arkansas" (Mary F. Hughes); (3) "Preserving Heritage While Restoring and Improving Facilities: A Rural Community's Experience" (Burton Edward Dickerson); (4) "Creating Technology Infrastructures in a Rural School District: A Partnership Approach" (Dennis Jensen); (5) "Gaining Rural Community Support for a Bond Issue: A Superintendent's Experience" (Stephen Dean Bohrer); (6) "Maintaining Respect for the Past and Flexibility for the Future: Additions and Renovations as an Integrated Sequence" (Dan Swedberg); and (7) "Managing the Rural School Facility Construction Process" (Angelo Passarelli, Wade Goehring, Anne Harley). (Contains references in each chapter.) (SV)

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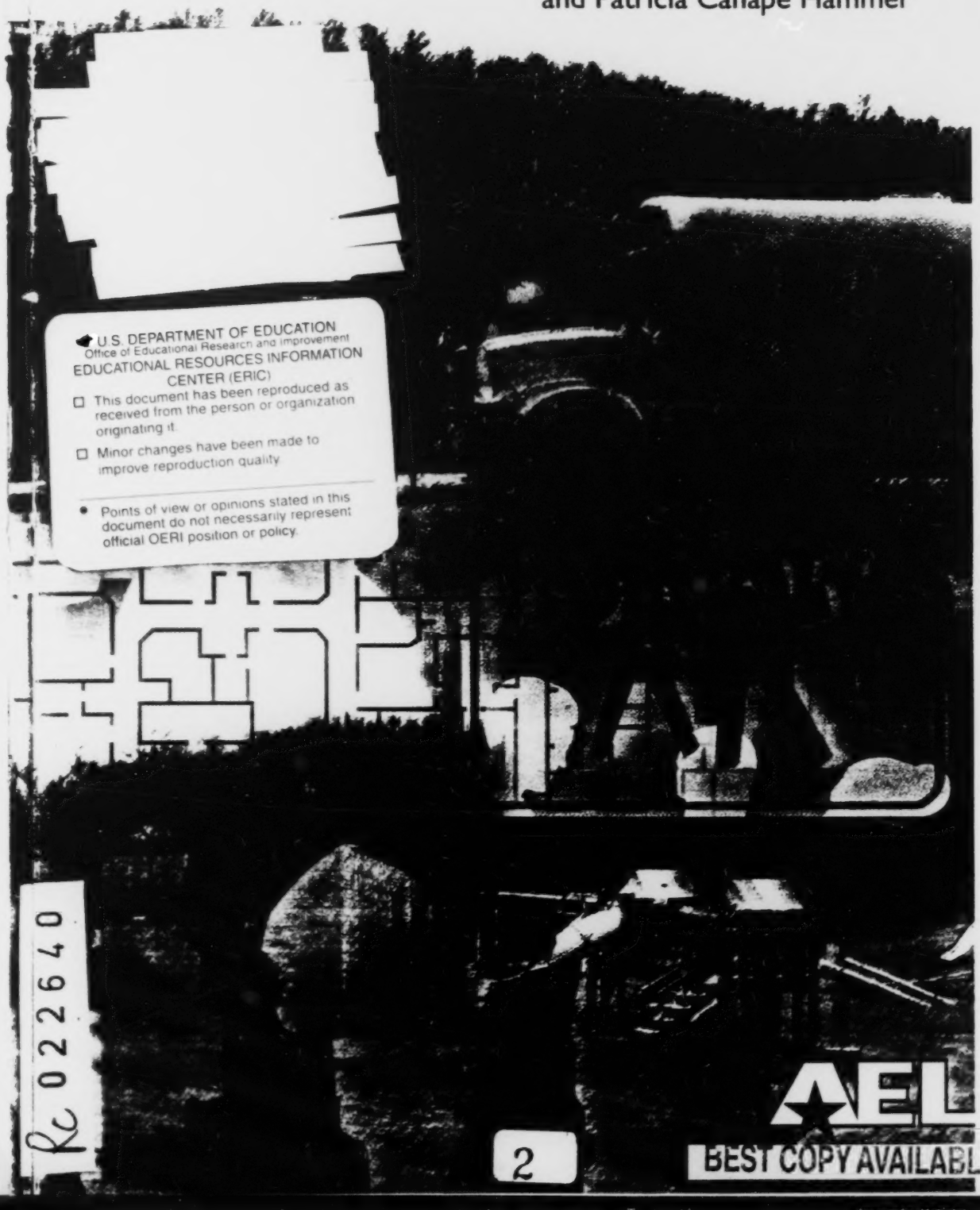
IMPROVING SCHOOL FACILITIES

Design, Construction, Finance, and Public Support

Edited by Sarah Dewees
and Patricia Cahape Hammer



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Improving Rural School Facilities

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Improving Rural School Facilities: Design, Construction, Finance, and Public Support

EDITED BY
SARAH DEWEES
AND
PATRICIA CAHAPE HAMMER

The Rural Education Specialty
AEL, Inc.
Charleston, WV

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AEL is a catalyst for schools and communities to build lifelong learning systems that harness resources, research, and practical wisdom. AEL serves as the Regional Educational Laboratory for Kentucky, Tennessee, Virginia, and West Virginia. For these same four states, it operates the Eisenhower Regional Consortium for Mathematics and Science Education. In addition, it operates the ERIC Clearinghouse on Rural Education and Small Schools.

The Rural Education Specialty at AEL serves as the organizational home for those aspects of AEL's work that involve providing R&D-based services to rural schools and communities. This includes the Rural Laboratory Network Program for the nation's system of 10 Regional Educational Laboratories. The mission of the Rural Education Specialty is to promote the integrity of rural, small schools in a global economy. Its guiding focus is to foster the essential relationship between rural schools and their communities.

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Printed by United Book Press, Inc.
Cover design by Richard Hynes

Library of Congress Cataloging-in-Publication Data
Improving rural school facilities: design, construction, finance, and public support
edited by Sarah Dewees and Patricia Cahape Hammer.
p. cm.
Includes bibliographical references.
ISBN 1-891677-05-5 (alk. paper)
1. School facilities–United States–Congresses. 2. Rural schools–United States–Congresses.
I. Dewees, Sarah. II. Hammer, Patricia Cahape 1950- III. AEL, Inc.

LB3218.A1 I46 2000
371.009'3'091734–dc21 00-063939

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This publication is based on work sponsored wholly or in part by the Office of Educational Research and Improvement, U.S. Department of Education, under contract number RJ96006001. Its contents do not necessarily reflect the views of OERI, the Department, or any other agency of the U.S. government.

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Preface

A 1995 General Accounting Office (GAO) study of school facilities created a renewed interest in the condition and quality of educational facilities across the nation.[1] The study highlighted the shockingly high number of inadequate school buildings in urban, suburban, and rural areas of the country, and stimulated several activities, including research, public forums for discussion, and legislative action. This book emerged out of one such project, sponsored by AEL, Inc., as part of its regional educational laboratory National Rural Specialty project. Other partners in the project were the National Clearinghouse for Educational Facilities[2] and the ERIC Clearinghouse on Rural Education and Small Schools. An Invitational Conference on Rural School Facilities, held in Kansas City, MO, in May 1998, brought together researchers, practitioners, and other professionals to discuss approaches to improving school facilities in rural America. The chapters in this book are based on seven of the papers presented at the conference. Where appropriate, they have been expanded to include data published in the intervening two years.

While the condition of rural school facilities varies across the country, most rural school districts face the same basic set of issues as they consider new facility construction, renovations, or additions: garnering public support for funding; working within local funding resources; and designing buildings to optimize instruction, energy efficiency, and the use of technology. This publication provides an overview of each of these issues and provides several inspiring case studies of communities that have worked against the odds and succeeded.

Chapter 1 provides an overview of population and enrollment trends that have implications for rural school facilities. It also presents information from the GAO study that has been so instrumental in bringing this issue to the forefront of the education agenda, and introduces school facilities funding issues at the federal, state, and local levels. In chapter 2, Mary F. Hughes takes up the funding issue in greater detail, providing a macro view based on her study of rural

school facility funding in the state of Arkansas. She identifies several critical challenges that have implications for other rural districts across the nation.

Focusing on the role of rural community support in facilities improvements, chapters 3, 4, and 5 provide instructive stories of successful school improvement campaigns. In chapter 3, Burton Edward Dickerson's case study tells of one rural community's united effort to convert a treasured old building into a state-of-the-art junior high school facility. In chapter 4, Dennis Jensen presents data from several recent studies that indicate key issues related to the integration of technology tools into a rural school building. He also provides an inspirational case study of one rural community's experience with successful technology integration, illustrating the potential and promise of technology for rural schools and their communities. In chapter 5, Stephen Dean Bohrer recounts his experience as a superintendent in a rural school district in Kansas, describing a series of activities leading up to a successful bond election.

Chapters 6 and 7 provide the architectural perspective. In chapter 6, Dan Swedberg describes an approach to facilities improvement that relies on additions and renovations to the existing building. This approach can be cost effective, preserve the historical qualities of the school, honor a community's values, and at the same time provide for current and future needs of students. In chapter 7, Angelo Passerelli, Wade Goehring, and Anne Harley identify technical challenges to a successful construction project, and propose an approach to project management that is especially designed to meet the needs of rural school districts and their leadership.

In this era of school reform, technological advancement, and changing demographics, rural schools are challenged to bring the best possible educational opportunities to their children. Doing so requires planning and research. We hope you find this publication a useful resource as you consider approaches to improving your community's school facilities.

The editors wish to thank Hobart Harmon and Charles Smith of AEL, Inc., and Glen Earthman of Virginia Polytechnic Institute and State University for organizing the conference from which this work was derived. We also thank Penny Sebok, Sheila McEntee, and Carolyn Luzader for their assistance in developing the manuscript for publication.

Notes

1. See two reports based on this study by the U.S. General Accounting Office: *School Facilities: America's Schools Not Designed or Equipped for the 21st Century* (GAO Report No. GAO/HEHS-95-95) (Gaithersburg, MD: General Accounting Office, 1995); or *School Facilities: Condition of America's Schools* (GAO Report No. GAO/HEHS-95-61) (Gaithersburg, MD: General Accounting Office, 1995).

2. This was a project of the original contractor for the National Clearinghouse for Educational Facilities (NCEF), Zeider's Enterprises, Inc., Woodbridge, VA. NCEF is currently operated by the *National Institute for Building Science* in Washington, DC.

Contributors

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Dennis Jensen began his first superintendency at the age of 26. After 18 years as superintendent of three rural districts, two in South Dakota, and one in Nebraska, he is now in private business in the areas of technology and distance education.

Angelo Passarelli is the vice president of business development for RAPM, Inc. He has a background of nearly 20 years in education as a teacher and principal. He currently teaches a course on school and facility planning for the University of Nebraska-Omaha.

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CHAPTER 1

Trends and Issues Affecting School Facilities in Rural America: Challenges and Opportunities for Action

SARAH DEWEES
GLEN EARTHMAN

While the rest of the nation has scrambled to accommodate growing school enrollment, rural America has experienced a slight enrollment decline. Within that overall trend there is great regional variation; however, rural and urban school districts alike face the challenge of decaying and outmoded buildings, with many districts at a severe disadvantage in obtaining funding to improve or replace facilities. This chapter discusses all of these issues using national studies and data sets.

Rural Population Trends

Researchers have increasingly noted the growing number of children entering America's public schools. This phenomenon, referred to as the *baby boom echo*, began in elementary schools in 1984. Enrollment at the national level has increased every year since and is predicted to result in a 26 percent increase in the number of children in high school between 1988 and 2008.[1] Twenty states will experience at least a 15 percent increase in the number of public high school graduates.[2] This baby boom echo differs from the baby boom because the number of school-age children is not projected to decline substan-

tially after these children have passed through the nation's public schools.[3] The data suggest that larger enrollments are here to stay.

Overall, this trend toward increasing enrollment has not been observed in rural America, especially in communities of 2,500 people or less. A recent study by the Rural School and Community Trust reported that at least 20 percent of rural schools in every state have experienced a decline in enrollment between 1994 and 1997.[4] In settlements of 2,500 people or less, the decline averaged nearly 4 percent, with some states seeing a decline of more than 10 percent. Figure 1.1 shows the contrast between the total school-age population in the nation to that in settlements of 2,500 or less.

On closer examination, the population trends in rural areas get more complicated. Data from 1990-1997 suggest that growth in nonmetropolitan areas was mostly due to the in-migration of people from the nation's cities and urban areas. Nearly three-fourths of the nation's nonmetropolitan counties gained people of all ages, but the counties with the largest gains were retirement and recreational destinations, areas that tend to attract people of nonchildbearing age. Thus, a contributing factor leading to declining enrollments in rural schools is a high proportion of elderly residents, leading to low birth rates.[5]

However, during the latter part of that time period, the proportion of people age 65 and older began to decline in rural areas due to another wave of in-migration, this time of young people of childbearing age. Between 1995 and 1997, the number of early career individuals (age 26-30) increased by 2 percent a year, and the number of children (ages 1-17) increased by 1.3 percent. That trend is now five years old, and the growing number of young families is slowing the decline in school-age population in some rural communities.[6]

There is a great deal of variability in the population trends across rural America. Recent data suggest that both the baby boom echo and rural population growth are concentrated in specific regions of the nation, with the western and southern regions accounting for the greatest shares.[7] Regions vary in nonmetropolitan population growth, with the western region experiencing the greatest increase, as Figure 1.2 shows. Figure 1.3 illustrates changes in rural school enrollment by state.[8] It is important to note that state-level data may disguise regional variability within states—some states may be experi-

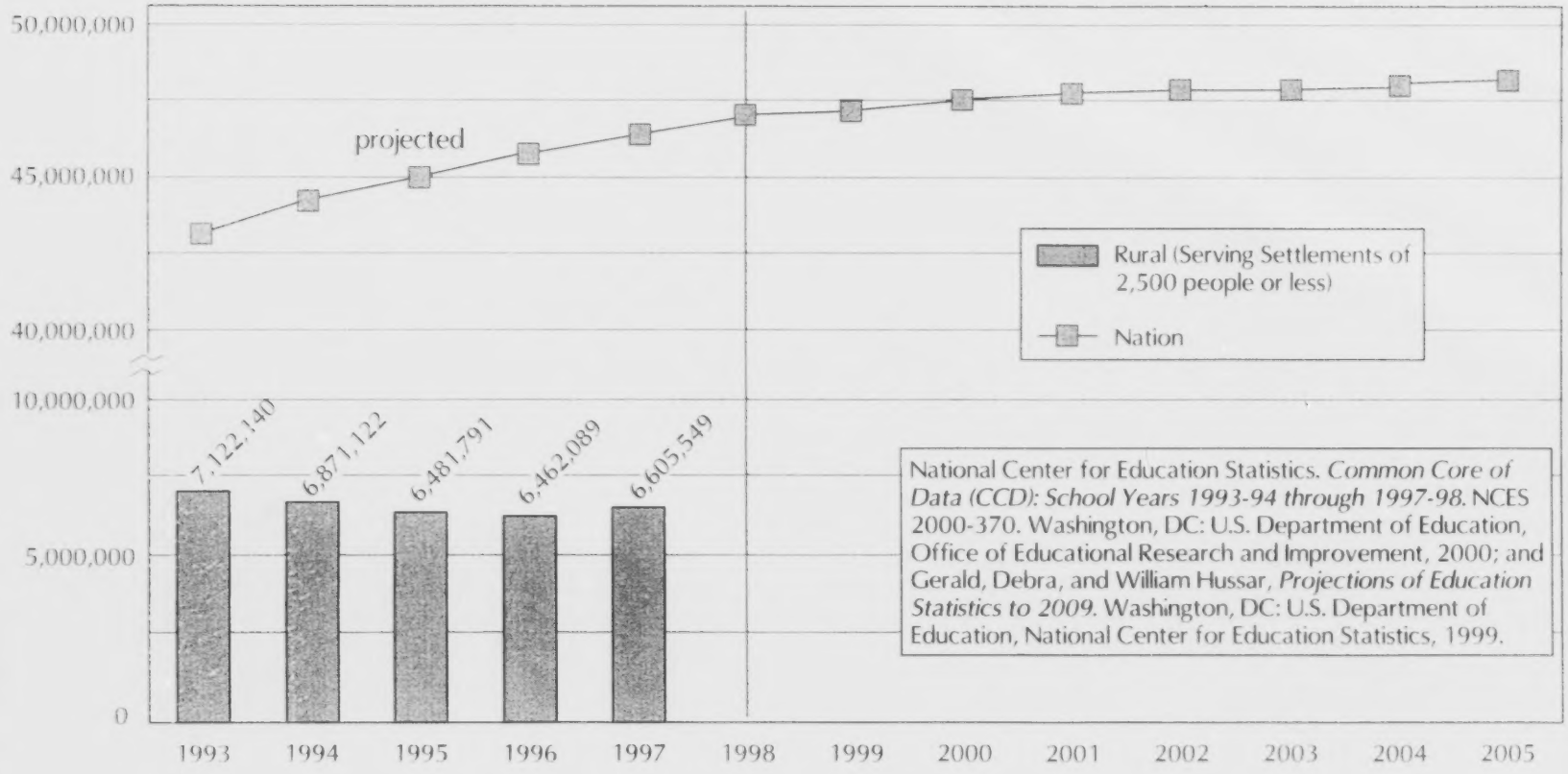

Figure 1.1. Total number of students enrolled in public schools in rural areas and total number of students enrolled in public schools nationwide

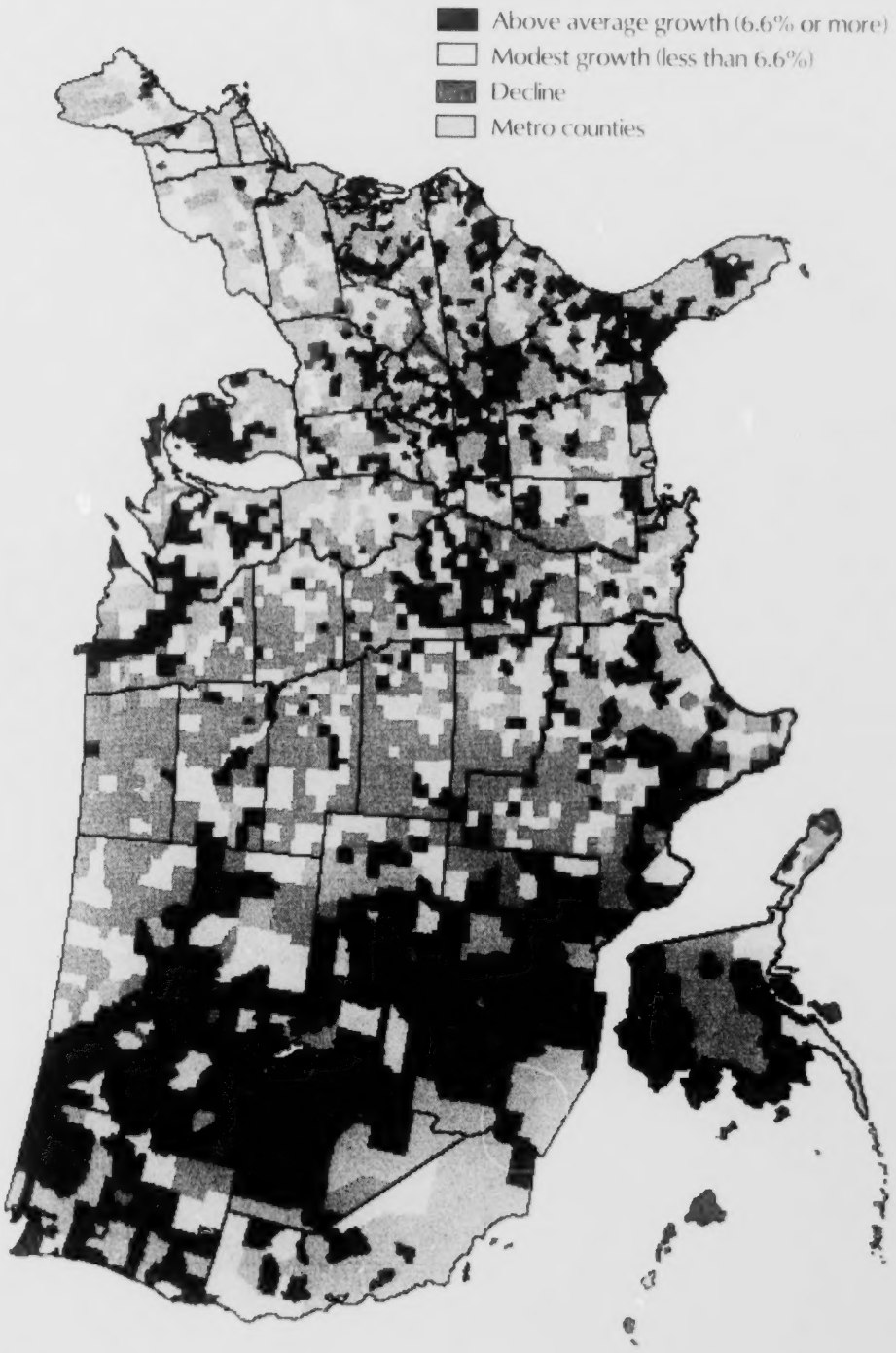

Figure 1.2. Nonmetropolitan population change, 1990-1997.

Reprinted with permission from Beale, Calvin, "Nonmetro Population Rebound: Still Real but Diminishing," *Rural Conditions and Trends* 9(2): 20-27 (1999). (USDA, Economic Research Service). Original data source: calculated by ERS using data from the Bureau of the Census.

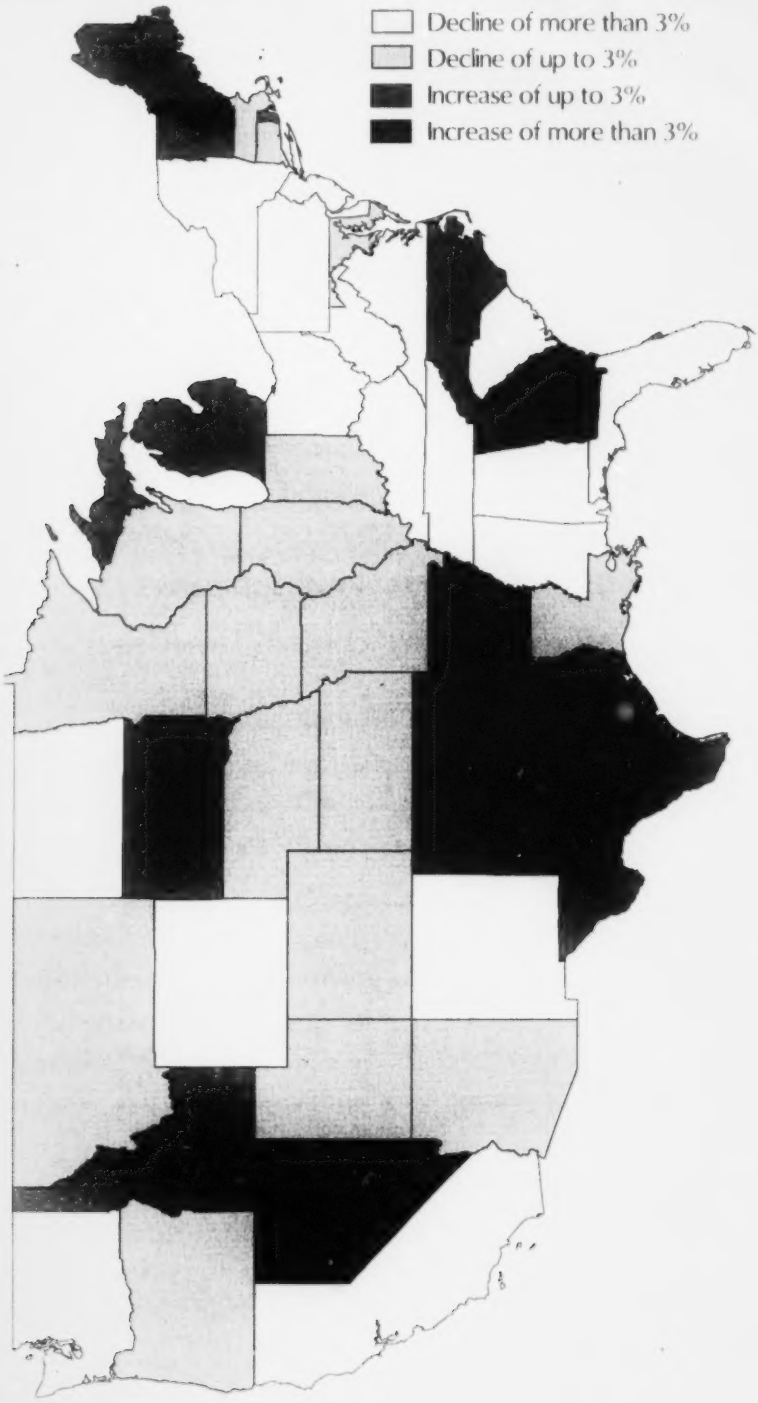

Figure 1.3. Percent change in the number of students in rural schools (schools serving a population of 2,500 or less), 1994-1997.

National Center for Education Statistics. *Common Core of Data (CCD): School Years 1993-94 through 1997-98*. NCES 2000-370. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, 2000.

encing rapid rural school-age population growth in only one area of the state. This map does not illustrate such dynamic demographic changes within states. Figure 1.3 suggests that some southern and western states, as well as some states in the Midwest, are experiencing growth in public school enrollment in rural settlements of 2,500 people or less. These states may need to increase investments in rural school infrastructure to accommodate student population growth.

Some rural areas of the nation will likely continue to experience population growth, while others experience decline. Therefore, state-level decisions regarding facility construction will have to respond to the unique population trends taking place in the rural areas of each state.

The Condition of the Nation's Rural Schools

Long-term underinvestment in school facilities nationwide has left a legacy of crumbling school buildings in many communities. In 1995, the General Accounting Office (GAO) conducted a survey of a nationally representative sample of school districts to gain an understanding of school facilities needs across the country. Data from the study indicated a need for $112 billion to complete the repairs, renovations, and modernizations required to help school districts comply with federal mandates.[9] More recently, the National Education Association surveyed the departments of education in all 50 states and asked them to identify repair and modernization costs, the costs of constructing new buildings to accommodate increasing enrollments, and the costs associated with upgrading the telecommunications in their schools. According to this study, the cumulative approximate costs for renovation, upgrades, and new construction will be $268.2 billion. The costs associated with technology upgrades will add another $53.7 billion.[10] Nationwide annual expenditures on school construction only averaged between $9 billion and $11 billion between 1989 and 1996, although this increased to nearly $17 billion in 1998.[11]

The data collected in the GAO study remain the most comprehensive available on the quality and condition of school facilities across the nation. While there are some limitations to this study, it provides information about the most pressing school facilities issues in America. According to the GAO study, one-third of all school buildings need

major repairs or replacement. Another 40 percent need repair or replacement of one or more building features, such as the plumbing fixtures or the roof. Two-thirds of the districts surveyed reported needing funding to comply with federal mandates over the next three years. Some of these mandates include the removal of asbestos, the removal of lead in water or paint, and the control of radon. Forty-one percent of all districts reported unsatisfactory energy efficiency.[12]

The GAO study also provides data on the condition of school buildings according to their geographic location. It suggests that central city urban schools are most likely to report significant building problems and unsatisfactory conditions. But a large number of rural schools also report a range of facility problems, including problems with building structures, environmental conditions, and access to technology elements. Table 1.1 provides information on these building features. Reports showed 30 percent of rural schools with at least one building in inadequate condition, and 51 percent of rural schools

Table 1.1
Estimated Percent of Schools with Inadequate Building Features by Community Type

Building Feature	Central City	Urban Fringe/ Large Town	Rural/ Small Town
Roofs	32.8	26.9	23.9
Framing, floors, and foundations	22.2	15.1	16.7
Exterior walls, finishes, windows and doors	34.3	24.8	22.4
Interior finishes	29.8	23.4	20.8
Plumbing	34.2	27.0	28.6
HVAC	41.7	36.0	33.1
Electrical power	31.8	26.7	22.7
Electrical lighting	29.4	26.3	21.7
Life safety codes	21.9	20.0	16.4
At least one inadequate building feature	66.6	56.8	51.7

Note: Sampling errors for estimates based on percent of schools are less than +/- 4 percentage points.

Source: General Accounting Office, *School Facilities: America's Schools Report Differing Conditions*, Table II.7, 1996.

with at least one inadequate building feature.[13] Twenty-four percent of all rural schools needed roof repairs, and 29 percent had problems with plumbing.[14] Other problem areas included foundations and flooring, electrical wiring, and exterior finishes.

Energy efficiency. There is a great need to improve the energy efficiency of rural building structures and systems. Since the 1970s, the increase in heating and lighting costs for rural school facilities has continued to take a large percentage of the education budget. The major problems in most older rural schools include inadequate or nonexistent insulation in buildings, windows, and exterior doors; lack of weather stripping on exterior doors; old or nonexistent exterior sealant; and inefficient furnaces, boilers, and electrical lighting.[15] Table 1.2 provides information on environmental issues in rural school buildings.

Environmental conditions. The GAO survey showed 54 percent of rural schools have at least one unsatisfactory environmental condition—39 percent with unsatisfactory energy efficiency, 27 percent with unsatisfactory noise control, and 24 percent with unsatisfactory ventilation.[16]

Table 1.2
Percent of Schools Reporting Unsatisfactory Environmental Factors by Community Type

Environmental Factor	Central City	Urban Fringe/ Large Town	Rural/ Small Town
Lighting	20.4	17.3	11.4
Heating	22.8	19.0	17.0
Ventilation	31.5	28.2	23.6
Indoor air quality	22.5	19.0	17.2
Acoustics for noise control	31.6	26.3	26.8
Energy efficiency	46.1	40.3	38.6
Physical security	26.5	22.8	23.5
At least one unsatisfactory environmental condition	65.1	58.5	53.9

Note: Sampling errors for estimates based on percent of schools are less than +/- 4 percentage points.

Source: General Accounting Office, *School Facilities: America's Schools Report Differing Conditions*, Table III.5, 1996.

If the federal government increases assistance to rural schools, a worthwhile goal would be to upgrade the building heating and cooling systems. Such improvements would have lasting fiscal impacts by allowing operational savings to be shifted directly into budgets for technology and other quality programs.

Technology. There are tremendous needs when it comes to upgrading building space and technology systems.[17] Many rural schools remain unequipped to use modern technology (see chapter 4 for more discussion of current research on technology use in schools). The overwhelming majority—84 percent of rural schools—lack fiber optic cable, and 46 percent lack operational computer networks. Nearly half of rural schools have six or more unsatisfactory technology elements.[18] When some students do not have access to facilities that can prepare them for the twenty-first century, an uneven playing field is created. Even students attending schools within the same district may not have equal access. Generally, schools need high-quality computers, printers, modems, and infrastructure improvements such as fiber optic cable, computer networks, plus high-quality electrical wiring to provide power for this equipment. The true potential of technology cannot be realized without this supporting building infrastructure.

New teaching formats. Nationwide, school reform efforts have introduced new methods of instruction and new expectations for schools that have increased demands on both personnel and educational facilities. Most education reform strategies encourage teachers to move away from teaching formats that rely on the chalkboard and passive students seated in rows of desks. New teaching formats require flexible spaces that can be used for large- and small-group instruction, laboratory classrooms, and media centers with multiple information resources. According to the GAO study, many school facilities lack the necessary space and flexibility to accommodate contemporary teaching formats.[19] More than a third (37 percent) of rural schools lack adequate laboratory science facilities, and 13 percent lack an adequate media center (see Table 1.3).

Access for individuals with disabilities. Finally, a major challenge for rural schools has been meeting the Americans with Disabilities Act (ADA) requirements for handicapped accessibility.[20] In general, most rural primary school buildings were built prior to these

Table 1.3
Percent of Schools Reporting Meeting "Not Well at All" on Selected Functional Requirements of Education Reform Activities by Community Type

Activity	Central City	Urban Fringe/ Large Town	Rural/ Small Town
Small-group instruction	12.0	9.8	7.6
Large-group instruction	38.8	34.8	39.8
Store student assessment materials	29.9	32.2	31.5
Display student assessment materials	27.1	26.5	28.5
Parent support	24.2	23.3	23.1
Social/health services	27.1	24.4	28.4
Teacher planning	14.7	12.8	12.2
Private areas for counseling/testing	30.4	25.8	22.6
Laboratory science	48.3	43.7	36.9
Library/media center	13.6	13.9	12.8
Day care	76.4	70.2	82.4
Before/after-school care	54.0	51.1	66.2

Note: Sampling errors range from +/- 1.3-3.5 percent.

Source: General Accounting Office, *School Facilities: America's Schools Report*

federal mandates. Some buildings lack single-acting door hardware, adequate side clearance for passage doors, and signage. All schools, including rural schools, continue to work to upgrade their buildings to accommodate students with a broad range of abilities.

Funding Challenges Facing Rural Schools

In 1998, the average public school building was 42 years old.[21] Many rural districts have not constructed a new building for decades. As a result, more students in rural areas attend school in buildings that are over 50 years old than do students in suburban school districts.[22] It is not unheard of for rural students to attend schools constructed a century ago. Rural school districts face a large backlog of building improvement needs as a result of both deferred maintenance and aging school buildings.[23] A 1990 survey estimated that capital needs of rural schools for deferred maintenance approached $2.6 billion, and

the costs to replace rural school facilities were estimated to be near $18 billion.[24]

Rural schools also face a unique challenge in finding funding support in both the state and federal political arenas. The political influence of rural areas has diminished considerably since World War II because of the movement of people to urban areas. In most states, rural legislators, who represent smaller numbers of voters, have less power in state legislative bodies than urban and suburban legislators. In some cases, the state political environment does not support maintaining small and rural schools. Rural school administrators may not pursue funding options for fear of being pressured to consolidate or close their schools. Because providing services is often more expensive in rural areas and these areas have less political power, many rural schools remain underfunded.

Traditionally, few state legislatures have been willing to provide financial assistance to their local school districts for capital outlay and debt service. This has resulted in local districts bearing the major burden of financing local school facilities, a challenge many rural school districts have great difficulty meeting. Data from a national survey of rural school districts suggest that because rural districts have lower enrollments, inadequate tax bases, and regulatory limits to their debt, they often cannot generate the revenues required to build school facilities.[25] Thus, many rural districts have three strikes against them. In addition, many have higher poverty levels and less ability to support local bond initiatives.

Nationwide, schools with a higher proportion of children in poverty are more likely to house their students in older facilities.[26] Residents in nonmetropolitan areas are more likely to have lower incomes than residents in metropolitan areas, and this gap in earnings has remained steady since 1991.[27] In 1997, more than 22 percent of children in nonmetropolitan counties lived in poverty compared to more than 19 percent in metropolitan counties.[28] Higher poverty levels in rural areas suggest not only that rural schools face additional challenges in helping their students learn to high standards, but also that many communities may have difficulty raising local revenues to build public school facilities.

Due to these and other factors (see chapter 2), rural districts appear to be constructing new school buildings and upgrading old ones at a

slower rate than other districts. According to a recent study, from January 1994 to June 1998, about 21 percent of districts in urban areas constructed at least one new school. This compares to only nine percent of districts outside of urban areas during the same time period.[29]

Practical Strategies for Funding Rural Schools

Authorities in rural school districts face daunting problems related to housing students in safe and modern school buildings, but there are actions school board members and administrators can take. Exploring alternative financing and housing schemes may prove productive. Another approach is to pursue political and communications efforts to make sure the issues are known and acted upon, at both the local and state levels.

Data on the financial resources of school districts suggest that most rural communities cannot meet their building needs because of assessed valuation of real estate. This is especially true of rural school districts that have limited wealth supporting each student as a measure of financial ability. A study of some rural school districts in Virginia found that an increase in the tax levy of 10 cents per one hundred dollars of assessed valuation would raise only about $1 million in revenue.[30] This amount of money is far below what is needed to meet any facility upgrade and is insignificant in all but the smallest construction projects. At the same time, the tax burden on the citizenry this rate represented was significant. This kind of comparison points out the fact that many rural school districts do not have the wherewithal to solve their facility problems.

State capital funding. One way to address this situation is to share the problems of individual school districts with the entire state population. Although the majority of states do provide local school districts with some funding for capital construction and improvement, the amount is very small compared to the need. Some states provide no financial assistance whatsoever to local school districts. In other cases, states provide a set dollar amount per pupil for maintenance projects. Typically, these flat grants to school districts are meager at best. Very few states provide local school districts with full funding for capital improvements. This type of funding, however, represents an

opportunity to level the playing field for all districts because it spreads the burden of meeting construction needs to every citizen of the state.

State building authorities. In the absence of a state capital-funding program for local school districts, a state building authority may provide funds for school buildings. Building authorities are quasi-governmental corporations originally developed to circumvent legal debt limitations on local school districts.[31] Authorities use the credit rating of the state to obtain the best possible interest rates for bonds. Some states have local and regional building authorities, but these would not offer funding options for rural areas because of the limited fiscal ability of the local school district.

There are several reasons why a state building authority can work well for funding. The first is that such an authority can be free from the political battles associated with annual legislative appropriations. Second, a school building authority can provide services rural school districts often do without, such as financial planning and project management.

The Chicago Public Building Authority is a good example of this service. It has the capability to design and construct school buildings for the Chicago Public Schools. As a result, the number of employees the school system needs for planning, designing, and supervising construction is greatly reduced. In this instance, the school district identifies a location where it needs a school, develops the educational specifications for the building, and communicates this information to the building authority.[32] School building authority employees complete all the design and construction work for the building. Appropriate public school employees review and approve the architectural plans to insure fidelity to the educational specifications, but the work of completing the building is left to the school building authority. It is easy to see how small rural school districts would benefit from such a system operating at the state level. In addition, the authority could likely construct the building less expensively than a small school district could.

Interest-free or tax-credit bonds. Other funding plans can reduce the cost of modernizing or constructing rural school buildings. One approach that could assist many school districts is the provision of interest-free or tax-credit bonds to states and/or school districts. Currently, school districts pay for schools by financing municipal

bonds, and the financing cost can be very large—often amounting to as much as the original cost of the school building itself. The cost can be cut by up to 50 percent with interest-free or tax-credit bonds.[55] In 1999, Congress reauthorized a program that provides up to $400 million in interest-free bonds for the years 2000 and 2001. These Qualified Zone Academy Bonds (QZABs) currently can be used only for school modernization, not to support new construction. Several states have used these bonds, demonstrating their usefulness in financing school improvements.

Converting vacant buildings. Some school districts have begun to explore ways to house students in other than traditional school buildings. One example involves converting existing community buildings to school use. It is usually less expensive to convert an existing building than it is to build a new structure. In many small towns, business decline has resulted in vacant buildings, including supermarkets and offices that could serve as school buildings. This approach not only provides cost savings, it also preserves buildings.

Sharing buildings. An alternative other communities have chosen is sharing space with other government agencies, either in a new or existing building. Some communities have constructed schools using part of the site for community recreational facilities, which are paid for by the local governing body. Other districts have housed small schools in commercial buildings with no capital costs and only minor operational costs to the school district. These are all creative ideas that provide alternatives to constructing new buildings.

Communicating at the state house and Capitol Hill. Beyond pursuing alternative financing and housing schemes locally, it is also important to advocate for the issues of rural school facilities at state and federal government levels. Rural educators and school board members must make their case known to politicians and other decision makers. Raising public awareness of rural education issues can be difficult because urban and suburban areas often take center stage in presenting their school building needs. Influence can be exercised in the legislative arena, however, and rural educators should be encouraged to communicate with their representatives.

While many state legislatures do not have large numbers of rural representatives, these legislators often have longer tenures than those from more populated districts. This works to the benefit of rural

citizens because their representatives often command some important posts and committee assignments. Rural legislators can build on this advantage by forming coalitions to work for rural school issues. In addition, they can reach out to form coalitions with suburban and urban legislators to promote state funding of school facilities. Such efforts help school districts in every part of the state and in turn promote the well-being of all students regardless of residency.

By forming communication links with their legislators and serving as reliable sources of information, school board members and administrators can make sure legislators have accurate information about school facilities needs. Information can be transmitted in a variety of forms: newsletters, special reports, meetings, and personal conversations. School board members and administrators should stay in regular contact with their legislators and be well known to them.

Communicating at home. Sharing information about school facilities needs with all segments of the community is also very important. In the typical school district, parents of children enrolled in the public schools usually constitute only a minority of the total population and therefore do not make up the majority of voters. School board members need the support of all segments of the population to pass bond referenda. Thus, the school district must find ways to communicate to all citizens. Informational meetings provide a forum to express facilities needs, but are usually not effective in reaching nonparents. Mailings to all citizens, including electronically transmitted messages, are very important ways to reach nonparent segments of the community. Such communication, however, needs to be continuous in nature and not a special public relations maneuver to enlist the support for a special issue or a bond referendum. An ongoing report to the entire population of the school district about the accomplishments and needs of the schools should be distributed regularly through a variety of media.

Conclusion

Rural school systems experience the same problems as schools in urban and suburban areas. They include insufficient funding for both the educational program and buildings, a lack of political support for public funding for facility improvements, and conflicting demands upon the educational program. Districts face these problems in

varying degrees of severity, but rural school districts often have fewer resources with which to address them.

The condition of a school facility can affect a student's learning experience in a variety of ways. Obviously, there are some basic conditions that need to be met. If the lighting is poor or the school is too cold or too hot, students have trouble concentrating. Lack of climate control can also limit the use of computers and other types of equipment that require air conditioning to protect them from overheating. Some schools simply lack the space to house all their students. According to research findings, all of these circumstances can adversely affect student performance.[54]

Most schools, even older schools, meet the minimal conditions needed to provide a basic education. But a surprising number of schools, even newer ones, do not have the physical infrastructure to support the space demands presented by school reforms, technology innovations, and other education trends. In our increasingly interconnected and complex world, our school facilities must be upgraded continually to meet the basic requirements of high-quality, up-to-date educational programs and approaches.

The strengths of many rural schools are the small classes and the close relationships among students and between students and teachers. Recent research suggests that small schools can even mediate the effects of poverty on student learning.[55] These strengths need to be communicated so that all citizens will appreciate the beneficial nature of small schools. Whatever solutions to school facility problems are implemented, they must capitalize upon and maintain these two strengths.

In many school districts, it is a struggle to find resources and support for new facility construction, renovations, or additions. Without some state-level funding equalization or improvements in federal aid, many of the nation's poorest rural districts will continue to educate their students in dilapidated, decaying, and outdated school facilities that endanger children's physical safety and deprive them of a quality education. In rural districts fortunate enough to generate funding support for facility improvement, intensive planning and research are required to construct a facility that meets current needs and provides the flexibility to meet future demands. The school building is not just a physical plant but an environment for learning. In

many rural communities, the school is the most important public institution, symbolizing community unity and progress. Equitable school facility improvement for rural, suburban, and urban children alike presents one of the nation's biggest challenges for the twenty-first century.

Notes

1. National Center for Education Statistics, *Issue Brief: Impact of the Baby Boom* and *Baby Boom Echo Continues;* Forgione, *Commissioner's Statement;* and Gerald and Hussar, *Projections of Education Statistics to 2009.*
2. National Center for Education Statistics, *Baby Boom Echo Continues.*
3. Forgione, *Commissioner's Statement.*
4. Rural School and Community Trust, "Declining Enrollment."
5. Beale, "Nonmetro Rebound"; Johnson and Beale, "Rural Rebound"; and Nord and Cromartie, "Rural Areas Attract Young Families."
6. Beale, "Nonmetro Population Growth Rebound"; Frenzen and Butler, "Births to Unmarried Mothers"; Rural School and Community Trust, "Declining Enrollment"; Johnson and Fuguitt, "Continuity and Change in Rural Migration Patterns"; and Nord and Cromartie, "Rural Areas Attract Young Families."
7. Forgione, *Commissioner's Statement.*
8. National Center for Education Statistics, *Common Core of Data (CCD).*
9. National Center for Education Statistics, *Issue Brief: How Old Are America's Public Schools?*
10. General Accounting Office, *School Facilities: Condition of America's Schools.*
11. National Education Association, *Modernizing Our Schools.*
12. National Priorities Project, *Recess Is Over!*
13. General Accounting Office, *School Facilities: America's Schools Report Differing Conditions.*
14. Ibid.
15. Ibid.
16. Ibid.
17. General Accounting Office, *School Facilities: America's Schools Not Designed or Equipped for the 21st Century.*
18. Ibid.
19. General Accounting Office, *School Facilities: America's Schools Report Differing Conditions.*
20. *Americans with Disabilities Act of 1990,* 42 *U.S.C.* 12133, 12188 (a).

21. National Center for Education Statistics, *Issue Brief: How Old Are America's Public Schools?*

22. National Center for Education Statistics, *Issue Brief: How Old Are America's Public Schools?* and Honeyman, "Condition of America's Schools."

23. Sack, "Rural Districts Pursue Elusive Capital Funding," and Stern, ed., *Condition of Education in Rural Schools*.

24. Honeyman, "School Facilities and State Mechanisms," and Stern, ed., *Condition of Education in Rural Schools*.

25. Honeyman, "School Facilities and State Mechanisms."

26. National Center for Education Statistics, *Issue Brief: How Old Are America's Public Schools?*

27. Huang, *Sociodemographic Changes*, and Bureau of the Census, *Poverty in the United States: 1997*.

28. Bureau of the Census, *Poverty in the United States: 1997*.

29. DeBarros and Henry, "Separate and Unequal."

30. Earthman, "Survey of School Expenditures in Virginia."

31. Thompson and Wood, *Money and Schools*.

32. Earthman, *Planning Educational Facilities for the Next Century*.

33. National Priorities Project, *Recess Is Over!*

34. Earthman, *Impact of School Building Conditions*.

35. Howley, *Small Works*.

References

Beale, Calvin. "Nonmetro Population Growth Rebound of the 1990's Continues, But at a Slower Recent Rate." *Rural Conditions and Trends* 8(2): 46-51 (1997).

_____. "Nonmetro Rebound: Still Real but Diminishing." *Rural Conditions and Trends* 9(2): 20-27 (1999).

Bureau of the Census. *Poverty in the United States: 1997*. Current Population Reports. Washington, DC: U.S. Department of Commerce, 1998.

DeBarros, Anthony, and Tamara Henry. "Separate and Unequal." *USA Today*, 2 June 1999, 1A.

Earthman, Glen I. *The Impact of School Building Conditions on Student Achievement and Behavior*. Blacksburg: Virginia Polytechnic Institute and State University, 1998.

_____. *Planning Educational Facilities for the Next Century*. Reston, VA: Association of School Business Officials, International, 1992.

_____. "Survey of School Facility Expenditures in Virginia." Paper presented at annual conference of the American Educational Finance Association, Blacksburg, VA, March 1994.

Forgione, Pascal D., Jr. *Commissioner's Statement: "Baby Boom Echo Continues" Report August 21, 1997*. Washington, DC: U.S. Department of Education, National Center for Education Statistics, 1997. http://www.nces.ed.gov/Pressrelease/releas03.html (21 April 2000).

Frenzen, Paul D., and Margaret A. Butler. "Births to Unmarried Mothers Are Rising Faster in Rural Areas. *Rural Conditions and Trends* 8(2): 66-69 (1997).

General Accounting Office. *School Facilities: America's Schools Not Designed or Equipped for the 21st Century*. GAO/HEHS-95-95. Washington, DC: General Accounting Office, 1995.

_____. *School Facilities: America's Schools Report Differing Conditions*. GAO/HEHS-96-103.Washington, DC: General Accounting Office, 1996.

_____. *School Facilities: Condition of America's Schools*. GAO/HEHS-95-61. Washington, DC: General Accounting Office, 1995.

Gerald, Debra, and William Hussar. *Projections of Education Statistics to 2009*. NCES 1999-038. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics, 1999.

Honeyman, David S., Jr. "The Condition of America's Schools." *School Business Affairs* 64(1): 8-16 (1998).

_____. "School Facilities and State Mechanisms That Support School Construction: A Report from the Fifty States." *The Journal of Education Finance* 16(2): 247-73 (1990).

Howley, Craig. *Small Works: School Size, Poverty, and Student Achievement*. Washington, DC: Rural School and Community Trust, 2000.

Huang, Gary. *Sociodemographic Changes: Promises and Problems for Rural Education*. ERIC Digest. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools, 1999. ERIC Document Reproduction Service No. ED 425 048.

Johnson, Kenneth, and Calvin Beale. "The Rural Rebound." *Wilson Quarterly* 22(2): 16-27 (1998).

Johnson, Kenneth, and Glenn V. Fuguitt. "Continuity and Change in Rural Migration Patterns, 1950-1995." *Rural Sociology* 65(1): 27-49 (2000).

National Center for Education Statistics. *The Baby Boom Echo Continues*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, 1998. http://www.ed.gov/pubs/bbecho98/part1.html (21 April 2000).

_____. *Common Core of Data (CCD): School Years 1993-94 through 1997-98*. NCES 2000-370. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, 2000.

_____. *Issue Brief: How Old Are America's Public Schools?* Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, 1999. http://www.nces.ed.gov/pubs99/age.html (21 April 2000).

_____. *Issue Brief: The Impact of the Baby Boom Echo on U.S. Public School Enrollments*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, 1997. NCES 98-039. http://www.nces.ed.gov/pubs98/98039.html (21 April 2000).

National Education Association. *Modernizing Our Schools: What Will It Cost?* Washington, DC: National Education Association, 2000.

National Priorities Project. *Recess Is Over! It's Time to Address Our Overcrowded and Deteriorating Schools*. Northhampton, MA: National Priorities Project, 2000.

Nord, Mark, and John Cromartie. "Rural Areas Attract Young Families and College Graduates." *Rural Conditions and Trends* 9(2): 28-34 (1999).

Rural School and Community Trust. "Declining Enrollment: Silent Killer of Rural Communities." *Rural Policy Matters* (May 2000): 1-2.

Sack, Joetta L. "Rural Districts Pursue Elusive Capital Funding." *Education Week* 17(15 October 1997): 1-11.

Stern, Joyce D., ed. *The Condition of Education in Rural Schools*. Washington, DC: U.S. Department of Education, 1994.

Thompson, David, and Craig Wood. *Money and Schools: A Handbook for Practitioners*. Larchmont, NY: Eye on Education, 1998.

CHAPTER 2

Financing Facilities in Rural School Districts: Variations among the States and the Case of Arkansas

MARY F. HUGHES

In the famous 1954 Supreme Court case *Brown v. Board of Education of Topeka,* Chief Justice Warren stated that "education is perhaps the most important function of state and local governments, and . . . must be made available to all on equal terms." In 1971, W. Monfort Barr and K. Forbis Jordan pointed out that even though the titles for school buildings may legally reside with the state, and education has historically and legally been considered a state function, a major portion of the financial burden for providing housing for educational programs and students had been placed upon the shoulders of the local school districts.[1]

Today, we know that education is still one of the most important legal functions of state government. We also know that a major portion of the responsibility for funding school facilities remains at the local level and that the quality of school buildings is not equal across most states.

The major question of this chapter is: How are rural school facilities financed? The answer is neither simple nor easy to discern. In most states, school facilities funding has been tied to the ability of the local school district to raise funds from local assessed property values,

which introduces the problem of equity. School districts with a higher assessed value of property will have greater ability to raise funds with equal or less tax effort than school districts with lower assessed property values. Many poor school districts have little or no available funding for school facilities when the avenue to raise funds is tied to their local wealth.

This chapter presents a brief literature review of school facilities funding issues in the United States and presents a case study of rural school facilities funding issues in the state of Arkansas. Many of the challenges faced by rural districts in Arkansas are shared by rural districts across the nation. The findings in this study raise questions and concerns regarding funding issues in other states. Finally, this chapter will present some conclusions and recommendations for more equitable rural school financing.

Financing School Facilities

According to Roe L. Johns, Edgar L. Morphet, and Kern Alexander, prior to the twentieth century, local governments were totally responsible for financing public school facilities in the United States. Writing in the early 1980s, they explained that local school districts in most states continued to bear the major responsibility with relatively few options available for obtaining funds to finance school facilities construction. They identified nine options: (1) "pay-as-you-go," or the ability to finance construction from current revenues; (2) reserve funds, or the accumulation of tax funds in a separate account for future buildings; (3) general obligation bonds; (4) full state support; (5) state equalization grants-in-aid; (6) state percentage-matching grants-in-aid; (7) state flat grants-in-aid; (8) state loans; and (9) state school building authorities.[2] Johns and colleagues noted that the problems identified in a 1971 National Educational Finance Project survey continued to exist in large part in 1980:

> In any general discussion of aid for public school construction throughout the nation, two paramount problems emerge: (1) many state-aid plans are only token in nature, and several states do not provide local school districts with any financial assistance for school construction; and (2) the federal government has not provided financial support for any general programs for school construction.[3]

Johns and colleagues found this to be problematic because in many parts of the nation school systems could not provide suitable funding for facilities through local resources.[4]

The tradition of local responsibility for financing school sites, buildings, equipment, and other capital costs is still strongly entrenched in many states. According to more recent research, 15 states provided no funding for school facilities in 1993-1994, which forced the school districts in those states to rely on their local property wealth for facilities funding. Other states provided very minimal funding. For example, Nebraska provided less than $1 million in 1993-94. Thirty-seven states provided some state funding for capital projects, including states that address capital outlay through their basic support program. During the 1993-94 school year, state funding programs for capital outlay included full state funding in Hawaii, flat grants in Indiana and South Carolina, percentage equalizing in Massachusetts with state funds ranging from 50 to 90 percent of the projects, 60 percent of approved project costs paid by the state of Maryland with proportional local funding rated on the district's wealth class, and funding provided through the School Building Authority in West Virginia. In summary, in 1993-94, some of the states provided equalized aid for school facilities, some provided flat grants, several provided funds in the basic funding formula, and some provided nonequalized aid.[5]

Table 2.1 presents an overview of capital outlay and debt service programs provided by the states. Capital outlay is defined as expenditures that result in the acquisition of or addition to fixed assets such as land, buildings, and equipment. Debt service programs include the revenue to pay the principal and interest on long-term debt (more than one year).

School District Wealth and Ability to Pay

As mentioned earlier, the ability of a school district to fund school buildings at the local level is directly related to the local fiscal resources available to that district. In most states the only fiscal resource available to school districts is the property tax. Therefore, the most commonly used measure of a district's ability to fund local

Table 2.1
Capital Outlay and Debt Service Programs, 1993-94

No State Funding	State Funding Percentage Equalized	State Funding *Special Formula or Flat Grant	State Funding Basic Funding Formula	State Funding Percent of Debt Service	State Funding State Leases	State Funding School Building Authority	Full State Funding
Arkansas	Connecticut	Florida	Alabama	Alaska	California	West Virginia	Hawaii
Idaho	Delaware	Indiana*	Arizona	New Hampshire			
Illinois	Georgia	Maine	Colorado	Ohio			
Iowa	Maryland	Minnesota	Kansas				
Louisiana	Massachusetts	Mississippi	Kentucky				
Michigan	New York	Nebraska	Tennessee				
Missouri	Pennsylvania	New Jersey	Texas				
Montana	Rhode Island	New Mexico	Wisconsin				
Nevada	Washington	South Carolina*					
N. Dakota		Utah					
Oklahoma		Vermont					
Oregon							
S. Dakota							
Virginia							
Wyoming							
Total: 15	Total: 9	Total: 11	Total: 8	Total: 4	Total:1	Total:1	Total: 1

Source: Steven D. Gold, David W. Smith, and Stephen B. Lawton, eds., *Public School Finance Programs of the United States and Canada, 1993-94*, vol. 1, (Albany, NY: Center for the Study of the States, 1995), 48-52.
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school facilities is that district's equalized assessed property valuation, upon which the property tax is based. Some school districts in some states have access to other revenue sources in addition to the property tax, including local income tax, local sales tax, vehicle excise tax, and user fees.[6]

Many researchers suggest that local fiscal capacity should be measured by local income, rather than the local equalized assessed property valuation, because there is a low correlation between property values and resident income. Some school districts have high assessed valuation of property and therefore a high property tax capacity but low incomes and thus a low resident fiscal ability to pay taxes. In these instances, limiting the measure of fiscal capacity to just property produces an inaccurate picture of the overall fiscal ability of the local residents to support education. These researchers have argued that there is a need to combine the two measures to arrive at a more comprehensive measure of fiscal capacity.[7]

Table 2.2 provides an overview of the different ways states measure local fiscal capacity. The information in Table 2.2 demonstrates the large number of states that use assessed property valuation both for measuring local wealth and for generating local school district revenue. Eight of the 15 states that did not provide state aid for school facilities funding in 1993-94 measured fiscal capacity only by assessed property valuation, upon which property tax is based. Those states were Arkansas, Idaho, Illinois, Iowa, Michigan, Montana, North Dakota, and Oklahoma.

School Facilities Funding in Arkansas

To provide a better understanding of financing issues facing rural schools, the balance of this chapter focuses on funding issues in the state of Arkansas. A highly rural state, Arkansas provides an interesting example of some of the funding challenges faced by rural districts. Many of the findings in this study apply to other states and highlight some of the problems faced by rural districts across the nation. In 1993-94, Arkansas was one of 15 states that did not provide substantial state aid for school facilities funding and was one of eight states that measured fiscal capacity by assessed property valuation only. In the 1997-98 school year, Arkansas provided $10 million for general facilities funding for 312 school districts housing approximately 400,000

Table 2.2
Classification of 1993-94 Basic Support Local Fiscal Capacity/Wealth Measures

Assessed Property Valuation (only)	Assessed Property Valuation & Other Revenue Sources (Not Including Personal Income)	Assessed Property Valuation & Personal Income	Assessed Property Valuation & Personal Income, Plus Other Revenue Sources
Arizona	Alaska	Connecticut	Alabama
Arkansas	Indiana	Maryland	Missouri
California	Louisiana	Massachusetts	Nebraska
Colorado	Mississippi	New Hampshire	Tennessee
Delaware	Nevada	New Jersey	Virginia
Florida	New Mexico	New York	
Georgia	Oregon	Pennsylvania	
Idaho	South Dakota	Rhode Island	
Illinois	Wyoming	Vermont	
Iowa			
Kansas			
Kentucky			
Maine			
Michigan			
Minnesota			
Montana			
North Dakota			
Ohio			
Oklahoma			
South Carolina			
Texas			
Utah			
West Virginia			
Wisconsin			
Total = 24	Total = 9	Total = 9	Total = 5

States not included in Table 2: Hawaii, North Carolina, and Washington. North Carolina and Washington do not use a measure of local fiscal capacity in the distribution of basic support aid. The following states provided descriptions for school years other than 1993-94: Colorado—1994-95, Michigan—1994-95, and Wyoming—1992-93.

Source: *Source*: Steven D. Gold, David W. Smith, and Stephen B. Lawton, eds., *Public School Finance Programs of the United States and Canada, 1993-94*, vol. 1, (Albany, NY: Center for the Study of the States, 1995), 48-52.

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students. This equates to $25 per student for state aid for facilities funding.

The Condition and Cost of School Buildings in Arkansas

In 1995, Arkansas had 3,101 school buildings of which 2,662 were permanent buildings in use and about 300 were temporary buildings. Ten percent (301) of the buildings were built before 1946 and thus were more than 50 years old. In 364 of the buildings, occupancy was greater than capacity. In 100 of the buildings, the roofs needed to be replaced. The construction cost per square foot for a regular classroom in 1995 was $38.42. For specialty areas including the site, labs, media center, gym, and auditorium, the cost was $65.47 per square foot. The 1995 cost of the total school facility and site was $49.12 per square foot.[8]

The Arkansas Department of Education reported in 1996 that during a typical school year, plans for approximately 100 school construction projects were submitted to the office of School Plant Services for approval. The department pointed out that the plans were equally divided among construction of an entire building, additions to existing facilities, and renovation projects. The major trend in both new construction and renovation projects was providing facilities for middle school instruction units. Arkansas schools were also working hard to provide state-of-the-art technology and had achieved a ratio of eight students to one computer.[9]

Differences among School Buildings and Facilities Funding in Three School Districts

By comparing three public school buildings located in three different school districts within the same county in Arkansas, we can gain an understanding of the funding inequities that can occur across rural and urban areas in a state. We will also look at the school districts' demographic and school facilities funding data.

School Building 1 is a new $8 million middle school that has 126,000 square feet of usable space for 1,050 sixth and seventh graders. The new building sits on 30 acres of donated land that has a value of over $500,000. The cost to build the middle school was about $63 per square foot, which included $300,000 for terrazzo floors. Many individuals have indicated that this is one of the most beautiful

and efficient school facilities they have ever toured and that it is an example of what public schools of the new millennium could offer. This school features state-of-the-art school architecture, equipment, and design, with 145 computers; 90 microscopes; a media center; band, chorus, and art rooms; a gymnasium; and a cafeteria with a stage. It is located in a school district that had a K-12 enrollment of 8,867 in 1993-94 and a 23-percent free and reduced lunch rate. With 50 students per square mile, this district is considered urban for the purposes of this study.[10] The borrowing power of the school district to build new buildings in 1994 was $10,098 per student, with a total borrowing power of $89,540,000.[11]

School Building 2 is located in an isolated rural school district with a total K-12 enrollment of 259 students in 1993-94, a 65-percent free and reduced lunch rate, and four students per square mile. The school district borrowing power for facilities was $5,051 per student, with a total school facilities debt limit of $1,308,125.

Located on the school district grounds are a secondary school (7-12 grade range), an elementary school, and a building that houses the cafeteria and the gymnasium. The original high school building was built in 1907, burned, and was rebuilt in 1915. The second building burned in 1930. The outside stone structure of the 1930 building survived the fire and the inside was rebuilt during the same year. Therefore, the present high school building is about 70 years old. The science class and lab are located in the basement of the high school, which the students affectionately refer to as the "dungeon." This area floods frequently with heavy rains. The science lab equipment consists of 22 microscopes and a fish tank. The halls above the basement have nails for coats and the building has no air conditioning. In 1996, the high school set up a computer lab with used computers and black and white monitors, but a majority of the computers became unusable when the room became too hot and the computers overheated. By 1998, the computer lab sat idle except for limited training on keyboarding. During the summer of 1997, the school acquired two new heating units that stand nakedly in the main hallway with ducts going into the classrooms. The one set of restrooms for the high school students is attached to the outside of the building, making it necessary for the students to go out of the building to get to the restrooms. The building is in need of repairs from the floor to the ceiling. School 2 is

located in the same county as the $8 million middle school.

School 3 is located in a rural school district that had a total K-12 enrollment of 1,078 in 1993-94, a free and reduced lunch rate of 50 percent, and 7.4 students per square mile. The school district borrowing power for facilities was $5,155 per student, with a school district total debt limit of $5,557,357. A major topic of discussion at this school is the district's new Information and Communication Center located in a new addition to the high school/middle school building. With 36,000 square feet, the addition was constructed for a cost of $3.5 million. This facility houses four computer labs, 12 classrooms, a 500-seat school/community auditorium with a grand piano, a conference room, and a 12,000-square-foot media center. The whole complex has been wired and prepared for the latest technology. The building was designed so that the computer labs are open for adult classes and community use.

All K-12 classrooms have access to distance learning, as well as a computer, phone, fax, TV, VCR, Dukane multimedia retrieval system, CD-ROM tower, and the Internet. Over 90 percent of the faculty and staff have active user accounts with Internet access. The high school and middle school students have accounts as well, with over 1,300 students soon to be on-line. The Information and Communications Center offers more than 16 different services and has three satellites, local television cable, live video capabilities, and digital satellite systems, as well as remote controls in every classroom. Soon distance education will be provided from this site.

The center is used by students, staff, parents, and the community. From 1990-1998, the school district grew from having six computers and four phone lines to having more than 400 networked computers and its own phone system. Grant writing, pilots, and community involvement in passing a tax increase provided funding for the new facility and equipment. Seventy percent of the community voted for a millage increase to fund the building. The philosophy of the school district is expressed in its motto: "Education is the business of the whole community."

These examples present three school districts with three very different school facility conditions. All three school districts are located within the same county. One has a new $8 million dollar state-of-the art middle school; one has a new state-of-the-art Information

and Communication Center and a new 500-seat school/community auditorium; and a third has computers that smoked and burned due to the lack of climate control in the high school building, student restrooms that are only accessible from the outside of the building, and a facility that is in great need of repair and maintenance.

How does such great disparity in the quality of school buildings happen in the same county? In the same state? Local property values, local incomes, leadership, and community involvement are some of the major reasons. Each school district provides facilities funding according to its ability to borrow money, which is tied to local property values. In 1998, the state provided a total of $10 million for facilities funding, but remember that the one new middle school cost $8 million. If you divide $10 million across 312 school districts and over 400,000 students, you can see a great problem: too little for too many.

Another problem is school size. The two rural school districts used as examples had about the same borrowing power for school facilities: about $5,000 per student. But the total amount of borrowing power is a different story. Compare the borrowing power to fund school facilities of the two rural school districts with the nonrural district: $1.3 million for the rural, sparsely populated school district, $5.5 million for the other rural school district, and $89.5 million for the urban district. Of course, the two rural school districts will not have the number of buildings that are required to house the students in the nonrural, larger school district, and will not require the same amount of total revenue for facilities funding. Yet, size presents a problem relative to the needs of a school district's facilities funding.

School Facilities Funding and School District Size

In 1993-94, the relationship between school facilities funding and school district size in Arkansas was very strong ($r = .94$). This means that as the size of the school district increased, the amount of funds available for school buildings increased. The measure of school facilities funding, or the amount that the school district could borrow with approval of the local community for local school facilities, was based on 22 percent of a school district's assessed property value. It should be pointed out that two school districts can have equal borrowing power per student (i.e., $7,000 per student), but it is the

total borrowing amount that becomes significant as a school district assesses its ability to build and repair buildings.

There is little relationship between borrowing power for school facilities and expenditure per pupil (r =.14). There is also little relationship between total borrowing power and borrowing power per pupil (r =.26)[12]. Size factors showed the strongest correlation with borrowing power. The number of certified staff, number of students, and number of students per square mile all show a high correlation to borrowing power (see Table 2.3). Borrowing power is inversely related to the percentage of students receiving free or reduced lunch.

Table 2.3
Bivariate Correlations among Key Variables in the State of Arkansas

	Borrowing Power
Number of certified staff	.93
Number of students	.94
Number of students per square mile	.74
Percentage of students receiving free or reduced lunch	-.16

Table 2.4 compares the five school districts ranked highest with the five districts ranked lowest on school facilities borrowing power. This table shows a dramatic difference in district resources available for school facilities funding in Arkansas. Borrowing power per student does not appear to be the best measure of comparison for school facilities funding, when one considers the *total* cost of a school building or that school building repairs can amount to millions of dollars.

Table 2.4 also reveals an interesting relationship between school size, rurality, and poverty, and their effects on school borrowing power. The lowest ranking school districts in Table 2.4 are rural and poor, as indicated by the low number of students per square mile and the high percentage of free and reduced lunch participation. As indicated earlier, the expenditure per pupil has very little relationship to school facilities funding. State policies mandate that school facilities funding in Arkansas is measured and obtained from local

Table 2.4
School District Borrowing Power
Five Lowest and Five Highest Ranked School Districts
Arkansas 1993-94

	Rank	Total Borrowing Power	Borrowing Power Per Student	Number of Students	Percent Free & Reduced Lunch	Number of Students Per Square Mile	Expenditure Per Pupil
LOWEST	1	$530,939	$4,871	109	76	1.1	$5,330
	2	$664,054	$7,461	89	79	0.6	$5,492
	3	$736,358	$3,188	231	85	2.1	$3,875
	4	$753,429	$5,057	149	73	1.1	$4,571
	5	$990,677	$5,726	173	61	5.6	$3,280
HIGHEST	1	$94,160,000	$10,864	8,667	28	33.6	$3,058
	2	$94,160,000	$17,827	5,282	28	55.0	$3,200
	3	$150,700,000	$12,207	12,345	36	190.0	$3,556
	4	$162,140,000	$7,952	20,390	39	28.0	$4,274
	5	$363,000,000	$15,303	23,721	49	224.0	$5,084

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property wealth. The resident ability to pay is not a factor in the state measure of a school district's capacity to fund school buildings.

In examining the borrowing power for facilities funding per pupil in Table 2.4, you will find that one of the lowest and one of highest ranking school districts have about the same borrowing power per student: $7,461 and $7,952 respectively. In comparing these two school districts, the lowest ranked district has 89 students with 78 percent free and reduced lunch rate and the highest ranked has 20,390 students with 39 percent free and reduced lunch rate. This finding illustrates two very important points. First, it is not the amount of funding per pupil that is important, but rather the total amount of funds available to a district. How many school buildings can a school district build and how many repairs can be made with $664,000 compared to $162 million? Second, this way of calculating borrowing power per student says nothing about a district's ability to levy taxes to pay for school facility building or renovation. How hard will it be for the local school district with 78 percent free and reduced lunch rate to support increased property taxes to pay a bond issue to cover the amount borrowed for school facilities? Compare this situation to that of the district with a lower free and reduced lunch participation rate.

When facilities funding is based on local property wealth and local ability to pay, great inequities will occur. Because of the way school funding is structured, rural districts often have three counts against them: lower total enrollment, lower property values, and a lower ability to support property taxes. One way to address this inequity in school facilities funding is for the state to recognize local wealth and local ability to pay and to equalize funds accordingly. A second way is federal assistance. Both of these funding methods would go a long way toward remedying the inequalities experienced by rural districts.

Rural Areas and Facilities Funding

In order to examine rural areas and facilities funding more closely, this section analyzes the 312 school districts in Arkansas. For this purpose, the 312 school districts in Arkansas were categorized by levels of ruralness and by levels of borrowing power for school facilities funding. An explanation of the levels of each category are as follows:

1. **Ruralness.** The five levels of ruralness are measured by students per square mile. Levels I and II represent the most rural school districts. Each school district was assigned a level:

   Levels of Rurality:
   Level Rural I = 0.5 - 5.0 students per square mile
   Level Rural II = 5.1 - 10.0 students per square mile
   Level Rural III = 10.1 -20.0 students per square mile
   Level Rural IV = 20.1 -40.0 students per square mile
   Level Rural V = 40.1 -300.0 students per square mile

2. **Borrowing power for school facilities by quartiles.** The 312 school districts were ranked from high to low on borrowing power for school facilities and divided into quartiles with each quartile containing 78 school districts. Quartile A contains the school districts with the least borrowing power for school facilities funding.

   Levels of Borrowing Power for School Facilities by Quartiles:
   A = Less than $2.6 million in borrowing power
   B = Greater than $2.6 million but less than $4.8 million
   C = Greater than $4.8 million but less than $10 million
   D = Greater than $10 million in borrowing power

Table 2.5 presents the number of school districts and the number of students by each category of borrowing power and level of ruralness. In relationship to ruralness, it is interesting to note that the most rural school districts, those with fewer than 10 students per square mile, are found in all four levels of borrowing power. As noted in Table 2.5, 76 school districts have fewer than 10 students per square mile and less than $2.6 million in borrowing power for school facilities. An additional 63 school districts have fewer than 10 students per square mile and between $2.6 million and $4.8 million in borrowing power. In total, 75 percent, or 234 of the 312 school districts in Arkansas have fewer than 10 students per square mile. The diversity in the borrowing power for school facilities for these 234 rural school districts ranges from $531,000 to over $10 million. The total student enrollment of 171,480 in the 234 rural school districts represents 38.6 percent of the total state public school population. The rural school districts, as measured by 10 students or less per square mile, represent

Table 2.5
Ruralness and Facilities Funding
1993-94 Arkansas

Quartile	Rural I 0.5-5.0 Students per Square Mile	Rural II 5.1 - 10.0 Students per Square Mile	Rural III 10.1 - 20.0 Students per Square Mile	Rural IV 20.1 - 40.0 Students per Square Mile	Rural V 40.1 - 300 Students per Square Mile	Total
A— Less than $2.6 million borrowing power	60 school districts 18,496 students	16 school districts 7,019 students	2 school districts 1,021 students	0	0	78 school districts 26,536 students
B—Between $2.6 and $4.8 million borrowing power (greater than or equal to 2.6M, less than 4.8M)	41 school districts 21,252 students	22 school districts 16,438 students	13 school districts 9,434 students	2 school districts 2,097 students	0	78 school districts 49,221 students
C—Between $4.8 and $10 million borrowing power (greater than or equal to 4.8M, less than or equal to 10M)	39 school districts 31,584 students	29 school districts 30,399 students	9 school districts 12,486 students	1 school district 1,264 students	0	78 school districts 75,733 students
D—Greater than $10 million borrowing power	12 school districts 16,008 students	15 school districts 30,284 students	18 school districts 50,673 students	18 school districts 88,856 students	15 school districts 106,914 students	78 school districts 292,735 students
Total	152 school districts 87,340 students	82 school districts 84,140 students	42 school districts 73,614 students	21 school districts 92,217 students	15 school districts 106,914 students	312 school districts 444,225 students

75 percent of the states' school districts and 39 percent of the student enrollment.

A total of 95 school districts are located in the four cells of Quartiles C and D and in RI and RII. This indicates that 40 percent of the rural school districts have borrowing power for school facilities funding ranging from $4.8 million to $10 million or more. Among the 234 rural school districts in Arkansas there is great diversity in the amount of funds that are available for school facilities funding. This illustrates, once again, that each school district's capacity for funding facilities is dependent upon property wealth, resident ability to pay, and school district size.

There is also great diversity in the number of students in each school district, the percentage of students receiving free and reduced lunch by quartile, and the borrowing power for school facilities funding, as shown in Table 2.6. The importance of this table is that it shows the great differences in districts' abilities to fund facilities and residents' ability to pay.

Table 2.6
Diversity in School Size, Resident Ability to Pay, Ruralness, and Funding Facilities by Quartiles

Borrowing Power Quartile	Number of Students (Range)	Percentage Free & Reduced Lunch (Range)	Students per Square Mile (Range)
A—Less than $2.6 million borrowing power	89 - 851	20 - 94	0.5 - 18
B—Between $2.6 and $4.8 million borrowing power (greater than or equal to 2.6M, less than 4.8M)	225 - 1,381	19 - 100	1.2 - 30
C—Between $4.8 and $10 million borrowing power (greater than or equal to 4.8M, less than or equal to 10M)	163 - 2,021	14 - 94	1.2 - 38
D—Greater than $10 million borrowing power	641 - 23,721	16 - 87	1.2 - 303

Note: Each quartile contains 78 school districts.

Summary and Conclusion

Across the nation, rural school districts face three main challenges in school facilities funding. First is the problem of school district size. Most rural school districts are small and serve only a small number of students. This tends to affect the total amount of funds they have available for construction or renovation, regardless of their borrowing power per student. Second, rural school districts are more likely to have lower assessed property values and therefore a lower ability to locally support school facilities funding. Third, rural districts are less likely to have the resident ability to support local taxes. Across the nation, many rural school districts have very high poverty levels and high percentages of children who qualify for free and reduced lunch. Regardless of the local assessed property valuation, many rural communities do not have the ability to tax themselves at a level that would support new facility construction or renovation.

Not all rural schools face the problems mentioned above. However, rural schools have a higher probability of facing at least one problem. Should they have two of the problems to contend with, such as small school size and low property wealth, a small school district can face an insurmountable challenge to facilities funding, especially if there is no state or federal aid.

The state of school facilities funding in Arkansas provides a good illustration of the problems that are found in many other states. In Arkansas, the amount of money that can be borrowed for school facilities funding ranges from $530,939 for a small, rural school district with 109 enrollment to $363 million for a school district with 23,721 enrollment. In facility funding per student, the largest school district has three times the amount of money the smallest rural school district has for school buildings and repairs. School size and local wealth work against a small school district when the state does not equalize school facilities funding. In the above example, the small rural school district had 78 percent of their students participating in the free and reduced lunch program, an indication of low resident ability to support additional taxes for facilities funding.

The diversity among the 312 school districts in Arkansas is great. Just among the 234 rural school districts, the borrowing power for school facilities funding ranges from $531,000 to over $10 million, the percentage of students qualifying for free and reduced lunch ranges

from 18 percent to 93 percent, and school size ranges from 89 to 3,709 students. State and federal aid policies for school facilities funding would have to include evaluations of each school district's size, local wealth, and resident ability to pay to establish an equitable solution to the problem of school facilities funding.

Education is a state responsibility. The education process is affected by the quality of the school facility. Many states have had to address equity issues in relation to expenditures per pupil and equal educational opportunity. The same equity issues should be raised in relation to school facilities funding. The quality of education, including the quality of the local school building, should not be dependent upon the wealth of the local community. In 1993-94, 15 states provided no state school facilities funding. Eight of those states measured local fiscal capacity by assessed property valuations. Arkansas was one of the eight states that depended on local wealth for the quality of school buildings. As illustrated above, in Arkansas there is great diversity in the quality of local school facilities and the ability of local communities to support school facilities. Unless school funding is equalized through state or federal policy solutions, the disparities seen in Arkansas will only continue across the nation.

Notes

1. *Brown v. Board of Education of Topeka*, 347 US 483, 74 (S.Ct. 686 1954), and Barr and Jordan, "Financing Public Elementary and Secondary School Facilities," 251-52.
2. Johns, Morphet, and Alexander, *The Economics and Financing of Education*, 277-89.
3. Ibid., 228.
4. Ibid., 275.
5. Gold, Smith, and Lawton, eds., *Public School Finance Programs*.
6. Ibid., 25.
7. Hughes, *Fair Share Dilemma*, 36-37.
8. Arkansas Department of Education, *Arkansas School Facilities Needs Assessment Report*.
9. Ibid. According to D. Cecil McDermott of Instructional Microcomputer Projects for Arkansas Classrooms (MPAC), Arkansas ranks ninth in the nation in student-per-computer ratio.

10. School districts with 10 students or less per square mile are considered "rural" for this study. Districts with more than 10 students per square mile are considered urban.

11. School district borrowing power or debt limit for school facilities is computed as 22 percent of assessed property value. Property is assessed at 18 to 22 percent of market value. The school district can borrow up to 22 percent of the assessed property value of the school district area.

12. The number of students in each school district is measured by the number of students in Average Daily Matriculation (ADM) per year.

References

Arkansas Department of Education. *Arkansas School Facilities Needs Assessment Report.* Little Rock: Arkansas Department of Education, School Plant Services, 1996.

Barr, W. Monfort, and K. Forbis Jordan. "Financing Public Elementary and Secondary School Facilities." In *Planning to Finance Education,* edited by Roe L. Johns, Kern Alexander, and K. Forbis Jordan. Gainesville, FL: National Educational Finance Project, 1971.

Gold, Steven D., David M. Smith, and Stephen B. Lawton, eds. *Public School Finance Programs of the United States and Canada, 1993-94.* 2 vols. Albany, NY: Center for the Study of the States, 1995.

Hughes, Mary F. *The Fair Share Dilemma: Property Wealth, Per Pupil Revenue and Resident Ability to Support Public Elementary and Secondary Education in West Virginia, 1991-92.* Charleston, WV: Education Policy Research Institute, West Virginia Education Fund, 1992. ERIC Document Reproduction Service No. ED 356 119.

Johns, Roe L., Edgar L. Morphet, and Kern Alexander. *The Economics and Financing of Education.* 4th ed. Englewood Cliffs, NJ: Prentice-Hall, 1983.

CHAPTER 3

Preserving Heritage While Restoring and Improving Facilities: A Rural Community's Experience

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This chapter provides a brief overview of the literature on community involvement and a case study of community involvement in a rural school facility project in Washington State.

Within the education literature references to school-community partnerships and parent involvement in schools abound. Popular education journals such as *Educational Leadership* and *Phi Delta Kappan* have devoted entire issues to this concept.[1] The *International Journal of Educational Research* dedicated its first issue in 1996 to the publication of reports from a dozen different countries, all focused on the movement toward "boundary crossing" in education to involve families and communities.[2] A recently published book by George J. Michel on education reform emphasizes that community and parent involvement are integral elements to successful implementation of reform initiatives.[3] One study even found school-community partnerships to be the third most common topic of doctoral dissertations on rural education issues over a four-year period.[4] This topic was topped only by studies on the overall effectiveness of rural education and studies of human resources available for rural schools. In addition, research conducted by Bruce Miller at the Northwest Regional Educational Laboratory focused attention on identifying ways that rural

schools can become catalysts for community rehabilitation and development.[5] Subsequently, the Rural Education program at Northwest Regional Educational Laboratory developed and piloted a school-community renewal program in five school districts. Further, in a keynote address at the 1994 International Conference of the Rural Education Research and Development Centre, Paul Nachtigal emphasized the role of the school in community development, asserting that rural schools have the potential to play a significant role in the economic and cultural health of their communities.[6]

A limited review of the literature also reveals numerous references to community involvement in school construction projects. The majority of these are opinion pieces or "how-to" guides that appear primarily in journals and guidebooks intended for use by school facility design consultants and planners. Several articles stressing the importance of community involvement have appeared in the journal *Educational Facility Planner*. Beyond merely describing the importance of gaining support for obtaining public financing, these articles stress the importance of using public participation to assess needs, determine the scope of the project, and interpret the project for the general public.[7] Guidebooks also have been published that provide extensive direction in applying various approaches to community involvement in planning school facilities projects.[8]

Writing for the *American School Board Journal*, Sally Banks Zakariya observes that decisions surrounding school facilities improvement projects evoke a politically charged environment, and that community involvement can be the key to success.[9] Ben E. Graves advises readers to involve the public at the early stages of facility project planning and suggests that advisory committees should include broad-based representation.[10] Randall Yearwood suggests that architects should complete large portions of their work on site in the school district, rather than in their offices, to assure ample input from school and community representatives.[11]

Another type of community involvement documented in recent literature is the trend toward joint-use projects.[12] For example, a school district may agree to share the use of a newly constructed gymnasium with the community in return for funding from the city, or a performing arts auditorium may be shared with a local arts council in return for financial support.

While literature addressing school-community partnerships and citizen involvement in school construction projects is ample, empirical studies specifically addressing community involvement in rural school facilities projects are far less common. Brief references to a few such pieces follow.

As noted previously, school construction projects have the potential to become politically charged community issues. This may be due in part to the fact that schools deal with two very sensitive areas of people's lives—their children and their money.[13] A case study by Robert V. Carlson documents how a rural school project can also become the focal point for drawing a divided community together.[14] Steven C. Deller studied the effects of an aging rural population on financial support for schools. He found that a higher percentage of retirees does not necessarily have an adverse impact on the passage of school bond elections.[15] Writing about a successful effort to pass a bond referendum to build two elementary schools in rural Virginia, Richard D. Greig offers four recommendations: start the campaign early, establish a grassroots organization, stress school needs, and reach the public.[16] Laurie Freeman writes about how a school board member in a small community used a homemade video to garner support for a facilities improvement project.[17]

In many cases, rural areas are also characterized by poverty, making the task of providing local financial support for improving school facilities even more daunting. The capacity to harness local resources is crucial. H. D. Tamang and K. C. Dharam write about how community participation has been encouraged and harnessed to help plan and construct low-cost, technically acceptable school facilities in Nepal, one of the poorest countries in the world.[18] Voluntary community organizations may also play a significant role in building support for and doing the work of improving school buildings. A recent issue of *Small Town* included an article that described how diverse volunteer organizations have emerged to address community needs and described their impact on community improvement, local activities, and area schools.[19]

There are many common themes in the literature on community involvement in school facilities planning. Previous research suggests that citizen support is critical for the success of school construction projects, and that such projects can create cohesion and become a

symbol that unites communities. Successful school construction efforts provide open, honest communication about the project and give the community a sense of ownership. Many of these themes will also be apparent in the community case study provided in this paper.

A Case Study of Community Involvement in Rural School Facility Planning: Waitsburg, Washington

The community of Waitsburg, Washington, which recently worked to improve local school facilities, provides an interesting case study of community involvement in a rural school facilities improvement project. Located in rural southeastern Washington State, the town of Waitsburg is situated along the Touchet River near the foothills of the Blue Mountains. The town is surrounded by rolling wheat fields and is positioned directly along the route taken by Lewis and Clark in their historic overland expedition to the Pacific Ocean. Before the town was founded in 1865, Native Americans made their camps along the streams nearby.

With a population of just over a thousand people, Waitsburg is a quiet community that boasts of being "one of a kind." It is the only city in the state that still operates under the terms of its territorial charter. Other nearby towns include Dayton, located 10 miles to the north (population 2,000); Prescott, which is eight miles to the west (population 300); and Walla Walla, located 20 miles to the south (population 30,000).

Although not exceptionally isolated, Waitsburg has a very strong sense of community. Many area residents make some type of community involvement a priority. Local service clubs carry out a variety of fund-raising and development projects specifically for the benefit of the community. The school district is the largest employer in town with 55 employees, followed by the McGregor farm chemical dealer, which provides jobs for about 30 employees. Waitsburg is a wheat farming community, and agriculture is the foundation of the local economy. While a number of residents work on farms or in farm-related businesses, others work in the town's stores and businesses. Still others commute to jobs in nearby towns. Waitsburg is also home to a number of retired citizens, as well as those who are not employed and receive some form of public assistance.

Waitsburg School District, in many ways, is the hub of life in the

community. High school athletic, music, and drama programs provide the primary "place to go" for many local residents. School facilities are also a central location for a variety of community meetings and activities.

The district serves approximately 410 students in a physical plant consisting of three school buildings located on a single campus. The elementary school (K-6) is located in the center of the campus in a building constructed in 1949. The junior high school (grades 7-8) is housed in a 1913 building known as Preston Hall. The high school, originally built in 1926, serves students in grades 9-12. A gymnasium and vocational-agricultural shop were added to the high school in 1964. Athletic facilities, which include football, track, and baseball fields, and a field house, are situated about three blocks from the main campus.

The Project

The Waitsburg, project included the complete renovation and restoration of a historic school building to serve as a junior high facility, as well as remodeling and new construction upgrades for the elementary school building. The need for a major school facilities improvement project in Waitsburg became clear in the late 1980s and early 1990s. The key factors were growing enrollment and aging facilities.

The elementary school building, initially constructed in 1949, was struck by a fire in 1964 that destroyed the multipurpose room, kitchen, and music room. Although this section of the building was rebuilt, the classroom wings remained in their original state. The use of low-cost construction materials and methods, coupled with aging or inadequate mechanical and electrical systems, made the need for serious upgrading evident. In addition, asbestos was present in nearly every part of the building, and energy efficiency features were almost totally lacking. Classroom space for special education and technology were not adequate, and the library, which serves all district students in grades K-12, had also been outgrown.

Preston Hall, a three-story brick building initially constructed in 1913 as a community building, had served as a school building over the intervening years. With enrollment decline in the 1960s, the building was essentially closed and became little more than an

oversized storage space. Students in grades 7-8 were housed in the high school building. As enrollment began to increase again, the high school became more crowded, until classrooms were overflowing and every available space was being utilized throughout the entire school day. With additional enrollment growth on the horizon, more space was clearly needed. In addition, community members (particularly parents) became more and more vocal about the need to provide a facility just for junior high students, so they could have their own identity and be separated from the older students.

After attempts to generate voter approval for funding to build a new elementary school failed in 1989 and again in 1991, the school board decided to hire a new superintendent and advertise for an architectural firm to complete a new study and survey of district facilities. The board's most urgent mandate for the new superintendent was to develop a plan to achieve the needed school facility improvements and to generate public support that would translate into the public financing required to launch the project. The new superintendent believed that clear and open communication coupled with community input were the keys to success.

After listening to a wide variety of residents and district employees to obtain background information and a sense of the main issues, the new superintendent formed a school facilities steering committee. The purpose of this group was to gather and review information and make recommendations to the board and superintendent. The superintendent appointed four committee members who were key figures in the community. One was a city council member who had retired from a career as a school administrator in another town. A second member, also a city council member, was an employee of the local newspaper, an active member of the Waitsburg Historical Society, and the widow of a former school maintenance and custodial employee. Two other appointees, both well known community leaders, were members of the school board. One was a young farmer and long-time community resident. The other was a machinist who was employed in a neighboring town. The committee was chaired by the superintendent.

The first task faced by the steering committee was the selection of an architect. An architect had worked with the district previously to develop plans for project proposals that were voted down. However, the board believed that part of the reason for the lack of public

support was a lack of confidence in the architect. The committee discussed and established selection criteria, screened the proposals that had been submitted, and interviewed the finalists. Key characteristics desired in the architect were the ability to interact effectively with members of the community and the ability to listen and respond to the concerns and wishes of the district and community regarding the development of project plans. On the basis of the selection process, the committee made a recommendation that was subsequently approved by the school board.

At about the same time that the steering committee was being established, a monthly district newsletter was also introduced. The newsletter was mailed regularly to every resident of the district to effectively begin the flow of information about the operation of the schools. Each month news of events related to a possible school facilities project was included, along with invitations for community involvement and feedback.

With the newsletter in place, the steering committee established, and a new architect on board, the next step was to hold a series of community meetings. These meetings were to provide information to the public and gather feedback to help provide direction. The first meeting was scheduled with both a luncheon session and an evening session to accommodate the varying schedules of local citizens. Advertised in both the district newsletter and the local newspaper, as well as with posters placed strategically about town, the meetings were fairly well attended. About 30 citizens attended each meeting. At the meetings, the superintendent welcomed the audience, acknowledged the members of the steering committee, provided basic information about the purpose of the meeting, and introduced the architect, who shared clarifying information about school construction projects. A survey was distributed and attendees were asked to complete it before leaving. The survey asked for responses indicating the priorities of need at the various school facilities. The superintendent promised that a summary of survey results would be made available in the local newspaper promptly.

The clear conclusion from the survey results was that remodeling or replacing the elementary school was the highest priority. However, an interesting outcome of the survey was evidence of a growing interest in making the renovation of Preston Hall a part of the project.

This interest also emerged from informal conversations with citizens and the steering committee meetings. In previous attempts to push forward a facilities project, renovations to Preston Hall had not been included. In fact, some had even considered recommending demolition of the building. It became clear that demolition was a very unpopular idea to at least a segment of the community. Many community members remembered attending classes in Preston Hall, and many more recalled the days when the building's small gymnasium was the only gymnasium in the district. Nostalgic ties to the historical significance of this old school building were strong.

On the basis of feedback obtained from the first round of community meetings, a range of project options was developed. A second round of meetings was scheduled. Again information was provided, responses were heard, and people were asked to respond in writing to a survey. This survey listed three project options: elementary school only, elementary school and Preston Hall, and all three district buildings. Although large numbers favored options two and three, the steering committee settled on a recommendation of option number two, since the third option would be too costly.

With the scope of the project identified, the next step was to obtain funding. State matching funds were available to cover about 50 percent of the total project cost, but this funding could only be obtained if district voters approved issuance of bonds to cover the local share ($2.1 million). Community involvement played a large role in this process. A Citizens for Schools committee was formed to provide information and get out the vote on election day. The committee included a nucleus of about 12 citizens representing a broad cross section of the population. Activities included staffing an information booth at the school carnival, mailing an information brochure to all district residents, generating letters to the editor, advertising in the local newspaper, giving presentations at local club and organization meetings, distributing yard signs in support of the election, calling to remind district residents to vote, and driving voters to polling places.

The school construction project was a heated issue in the community. Many were passionately supportive of the plan to remodel the elementary school and Preston Hall. There were also those who were vehemently opposed, believing the costs were too high and that too

great a burden was being placed on taxpayers. Based upon assessed property valuations at near market value, the proposed levy rate was $3.46/$1,000 over a 20-year period. On the Saturday before the Tuesday election, a one-page anonymous mailer opposing the bond measure was placed in the mailboxes of all district residents. The Citizens for Schools committee quickly responded with a mailing countering the opposition, which residents received on Monday. After the election results were tallied Tuesday night, there was jubilation among supporters when they learned that the measure was approved by a margin narrowly above the required 60 percent "yes" vote.

With the green light of a successful bond election, the district was set to move ahead with design work. Separate building committees were established for each of the two facilities. Each committee included representation from the staff and administration of the district, as well as the community. In the case of the Preston Hall building committee, two community members were also members of the Waitsburg Historical Society. Actively involved in community affairs, this group was particularly interested in seeing that the historic integrity of Preston Hall was retained throughout the process of remodeling. Society members had actively sought to place Preston Hall on the National Register of Historic Places. Each decision regarding the development of design and specifications was considered in light of the special interests of the historical society. At one point during design development, a joint meeting of the building committee and the Waitsburg Historical Society was convened to review a variety of decisions regarding specific aspects of the work to be completed. Compromises were necessary, but a cohesive working relationship was retained. This collaboration built support for constructive involvement of the society in other aspects of the work to follow.

During the planning and design process it became clear that limited funding would place some restrictions on what the building committees wished to include in the projects. Interested community members, led by one of the Preston Hall building committee representatives, began to inquire about how local citizens could help with the project and thereby stretch funding resources. It appeared, in particular, that some portions of the demolition work could be successfully accomplished by a volunteer work crew. A local farmer and bulk petroleum distributor led a group of volunteers who completed the

challenging task of removing most of the plaster and lath interior wall covering in Preston Hall, a three-story building of approximately 15,000 square feet. Wheat trucks were called into service to haul the debris, while crowbars and hard physical work did the rest. This effort alone saved the district several thousand dollars. It also seemed to cement the enthusiasm and support of the community for the project and served to mark the beginning of visible work beyond mere planning.

To make construction funding stretch as far as possible, the general contractor was given full access to the entire elementary building during the school year set aside for remodeling. In order to make this possible, alternative spaces for approximately 200 students in grades K-6 had to be found. Again, the school district looked to the community for the answers. Agreements were reached with three local churches, the city of Waitsburg, and the McGregor company to provide classrooms and storage space. In every case, these spaces were provided either free of charge or for minimal fees. The spirit of cooperation and support from the community was overwhelming. This arrangement called for a great deal of patience and flexibility on the part of staff and students and also required the support and understanding of parents.

Cooperation and support from the community were further demonstrated when it came time to move the contents of classrooms and other areas of the building into the temporary spaces. A moving day was organized and carried out by local community members, and spearheaded by the Waitsburg Lions Club. On moving day, each room's contents had been labeled according to destination. Farm trucks and pickups hitched to stock trailers and flatbed trailers lined the parking areas around the building. Volunteers arrived at 8:00 a.m. and were assigned to various crews. The work commenced, and the building was completely empty before noon. Members of the Waitsburg Commercial Club provided refreshments for the work crews.

As construction began in earnest, community involvement continued in the form of building committee meetings and the public's observation of the full scale demolition and construction work. The district continued communication through the district newsletter and contact with the local newspaper publisher, as well as through reports

at public meetings. When construction activities were nearly complete, community volunteers moved into action again, this time to do landscape work and install an underground sprinkler system for irrigation.

The Waitsburg Lions Club was instrumental in organizing these projects. Volunteers assembled at the school at 8:00 a.m. on two weekends, working in 100-degree temperatures to move dirt and level it to be planted in lawn and shrubs. They also installed underground pipes, valves, and sprinklers. The district purchased the materials and hired a contractor to design the irrigation system and provide supervision and direction during the work sessions. Again, the assistance of community members saved the district thousands of dollars.

Once construction was complete, the next step was moving back into the elementary school and Preston Hall. Once more, Waitsburg residents stepped forward to get the job done. This time there was a feeling of celebration in the air as volunteers moved furniture, equipment, and supplies into the newly refurbished facilities. For many, this was their first chance to get a look at the finished project. Shortly after the school year began, an open house was held to celebrate completion of the projects, thank those who helped, and allow district residents to view the completed work.

The positive changes at both buildings have become a source of pride for the community. Preston Hall, in particular, has become the talk of the town. As if to underscore this sense of pride and accomplishment, the project received formal recognition in two separate venues. The Waitsburg Historical Society received a "Historic Preservation Award" from the Eastern Washington State Historical Society for its efforts in "promoting historic preservation through the renovation of Preston Hall." In addition, the project was recognized by the Spokane Chapter of the American Institute of Architects with an Award of Merit for historic preservation projects. In making the public presentation of the award, Clark Llewellyn, director of Montana State University's School of Architecture, stated that he was particularly impressed with "how a small town cared enough about a humble old building to restore it, and how the architects took a number of complex building code requirements and made them look natural."[20]

Conclusion

The experiences surrounding the Waitsburg project represent one example that may be quite typical of what happens in many other rural communities. There can be little doubt that community involvement plays a significant role in the successful completion of rural school facility improvement projects. Although there is a great amount of information on school-community involvement, research on the ways community members may be involved in rural school construction projects is limited. The case study presented in this paper is meant to contribute to the literature on community involvement in rural school facilities projects. Additional reporting or research centered on this topic would add to the body of information available to assist those who face the challenge of providing improved school facilities.

The topic addressed in this paper is significant for a number of reasons. First, there are a large number of rural school facilities throughout the country. Nationally, 46.4 percent of our nation's school districts are rural.[21] Furthermore, two recent reports—a 1995 U.S. General Accounting Office report and a 1997 report by the Council of Educational Facility Planners International—revealed the extensive need for improvement in our nation's school buildings, which include a large number of rural school facilities needing substantial renovation or replacement.[22] The fact that higher levels of poverty are often associated with rural areas makes the task of publicly funding needed improvements in these areas even more difficult.

This topic is also significant in light of the unique role of the school in more isolated and rural areas. The centrality of schools to community life in many rural areas is obvious to those who have lived and worked in such environments. While school-community ties are significant in any community, the relationship may be even closer in small, rural districts where the school is often the hub of small town life. It is also evident that a major school construction project can be a more significant event in a small community than in a larger one. In some cases, the remodeling or replacement of rural school facilities may be a once-in-a-lifetime occurrence, whereas in a larger city, school construction projects are initiated every few years. In the small community, the project may involve all or nearly all of the district's

entire facility complex, while in the larger district, each project involves only a small proportion of the facilities.

The positive contributions made to these projects by community groups and individuals are a valuable and sometimes critically important part of accomplishing the task. There is a strong sense of community pride and spirit in many small towns such as Waitsburg. If positive involvement in school district operations is invited through open communication, responsiveness to community wishes, and efforts to foster a sense of community ownership, community support may be increased dramatically. There is no limit to what can be accomplished cooperatively.

Notes

1. Volume 53, number 7, of *Educational Leadership* (1996) and volume 78, number 10, of the *Phi Delta Kappan* (1997) were dedicated to this topic.
2. Davis and Johnson, "Crossing Boundaries."
3. Michel, *Building Schools*.
4. Harmon, Howley, and Sanders, "Doctoral Research in Rural Education."
5. Miller, "Rural Distress and Survival" and "Role of Rural Schools in Community Development."
6. Nachtigal, "Rural Schools, Rural Communities."
7. Gardner, "Community Based Facility Planning," and Stewart, "Using Citizens Committees to Assist in Referendum Campaigns."
8. Gwynne, *Guide for Planning Educational Facilities*, and Holcomb, *Guide to the Planning of Educational Facilities*.
9. Zakariya, "Construction is a Hot, New Board Game."
10. Graves, "Community Involvement in the Planning Process."
11. Yearwood, "On-Site Design Bridges the Architectural Gap."
12. Wilhelm and Luce, "Sharing Makes Sense," and Fickes, "Community-Use Trend."
13. Terril, "Architects Don't Build Schools—Communities Do!"
14. Carlson, "Rural School/Community."
15. Deller, "Effects of an Aging Rural Population."
16. Greig, "Board Referendum."

17. Freeman, "Homemade Video Sells Construction Project."
18. Tamang and Dharam, *Innovation in Primary School Construction*.
19. Weber, "Role of Voluntary Organizations in a Small Town."
20. Llewellyn, *Spokesman Review*.
21. Stern, *Condition of Education in Rural Schools*.
22. General Accounting Office, *School Facilities*, and Abramson, "1997 Construction Report."

References

Abramson, Paul. "1997 Construction Report." *School Planning and Management* 36(2): 14, 16-22 (1997). http://www.cefp.com/cefpi/1997-cr/.

Carlson, Robert V. "A Rural School/Community: A Case Study of a Dramatic Turnaround and Its Implications for School Improvement." *Research in Rural Education* 7(1): 23-33 (1990).

Davis, Don, and Vivian R. Johnson. "Crossing Boundaries: Family, Community, and School Partnerships." *International Journal of Educational Research* 25(1): 1-105 (1996).

Deller, Steven C. "The Effects of an Aging Rural Population on the Financing of Rural Public Education." *Journal of Research in Rural Education* 9(2): 104-14 (1993).

Fickes, Michael. "The Community-Use Trend." *School Planning and Management* 37(1) (1998).

Freeman, Laurie. "Homemade Video Sells Construction Project." *School Planning and Management* 35(6) (1996).

Gardner, Dwayne E. "Community Based Facility Planning." *Educational Facility Planner* 29(1): 4 (1991).

General Accounting Office. *School Facilities: America's Schools Not Equipped for 21st Century*. General Accounting Office Report to Congressional Requesters, GAO/HEHS 95-95. Washington, DC: U.S. General Accounting Office, 1995.

Graves, Ben E. "Community Involvement in the Planning Process." *Educational Facility Planner* 18(1) (1980).

Greig, Richard D. "Board Referendum: A Success in Rural Virginia." *Rural Educator* 12(3): 9-11 (1991).

Gwynne, Susan K., ed. *Guide for Planning Educational Facilities*. Columbus, OH: Council of Educational Facility Planners, International, 1982.

Harmon, Hobart L., Craig B. Howley, and John R. Sanders. "Doctoral Research in Rural Education and the Rural R & D Menu." *Journal of Research in Rural Education* 12(2): 68-75 (1996).

Holcomb, John H. *A Guide to the Planning of Educational Facilities.* Lanham, MD: University Press of America, 1994.

Llewellyn, Clark. *The Spokesman Review*, 4 October 1996, sec. D.

Michel, George J. *Building Schools: The New School and Community Relations.* Lancaster, PA: Technomic, 1997.

Miller, Bruce A. "The Role of Rural Schools in Community Development: Policy Issues and Implications." *Journal of Research in Rural Education* 11(3): 163-72 (1995).

_____. "Rural Distress and Survival: The School and the Importance of Community." *Journal of Research in Rural Education* 9(2): 84-103 (1993).

Nachtigal, Paul M. "Rural Schools, Rural Communities: An Alternative View of the Future." Keynote address presented at the International Conference of the Rural Education Research and Development Centre, Townsville, Queensland, Australia, July 1994.

Stern, Joyce D., ed. *The Condition of Education in Rural Schools.* Washington, DC: Office of Educational Research and Improvement, 1994.

Stewart, G. Kent. "Using Citizens Committees to Assist in Referendum Campaigns." *Educational Facility Planner* 30(1): 37 (1992).

Tamang, H. D., and K. C. Dharam. *Innovation in Primary School Construction: Community Participation in Seti Zone, Nepal.* Bangkok, Thailand: United Nations Educational, Scientific and Cultural Organization, 1995.

Terril, Sandra J. "Architects Don't Build Schools—Communities Do!" *Educational Facilities Planner* 29(3): 6-8 (1991).

Weber, Eugene J. "The Role of Voluntary Organizations in a Small Town: A Case Study of Coldwater, Ohio." *Small Town* 26(6): 12-19 (1996).

Wilhelm, Rick, and Buddy Luce. "Sharing Makes Sense." *School Planning and Management* 35(9) (1996).

Yearwood, Randall. "On-Site Design Bridges the Architectural Gap." *American School and University* 58(1): 66, 68, 73 (1985).

Zakariya, Sally Banks. "Construction is a Hot, New Board Game with Complex Rules and Gigantic Stakes." *American School Board Journal* 175(4): 27-30 (1988).

CHAPTER 4

Creating Technology Infrastructures in a Rural School District: A Partnership Approach

DENNIS JENSEN

A 1995 General Accounting Office report on school facilities suggested thinking about a school's technology infrastructure as having two parts. First there is the *building infrastructure*, which includes physical aspects such as the conduits through which computer networking cables are laid in the school, the cables and wires themselves, and the electrical power lines and outlets. Second, there is the *system infrastructure*, which includes software and hardware elements such as networking software, modems, computers, and printers.[1]

The first part of this chapter reviews student access to computers and the Internet, and issues related to both building and system infrastructures in rural schools. It also focuses on staffing resources, or the "human infrastructure," without which it would be difficult to upgrade buildings and systems. The second part of the chapter features a case study of a technology program in Wayne, Nebraska. This small rural town, with help from grant monies, local college personnel, and enthusiastic community members, was able to put together an impressive technology program for its school district.

Student Access to Computer Technology and the Internet

Recent data from the National Center for Education Statistics (NCES) suggest that things are changing rapidly in the field of educational technology. NCES reported that 95 percent of all schools are now hooked up to the Internet, and that access to the Internet appears to be equal across all schools regardless of where they are located (rural or urban). In 1999, 63 percent of public school instructional rooms were connected to the Internet. This number is expected to increase due to the allocation of funds from the federal Education-rate (E-rate) program, which provides discounts on connectivity for high poverty and remote schools. The ratio of students to computers in public schools is about six to one nationwide, although the ratio of students to computers with Internet access is slightly higher (about nine to one).[4]

Access to the Internet still varies by school poverty level, with high poverty schools less likely to have a low ratio of students to Internet-connected computers.[5] While many schools still use dial-up network connections to access the Internet, a growing proportion of schools uses higher speed dedicated-line connections. By 1999, 49 percent of the nation's public schools connected to the Internet with a T1 line, 23 percent used an individual or network modem, 7 percent used a cable modem, 7 percent used ISDN, and 12 percent used a 56kb line.[5]

Challenges Faced by Rural Schools

Rural schools that are still in the process of upgrading their technology infrastructures face significant challenges in retrofitting their buildings. Although elements such as wiring, electrical outlets, and conduits are easy to install when constructing a new building, installing them in existing school buildings can be expensive and disruptive.[5] Rural school districts often have older school buildings with multiple problems and lack climate control, appropriate space for computer labs, and necessary wiring. Further, schools with such basic concerns as leaking roofs or wiring problems find it difficult to invest in technology upgrades.[6] Schools without air conditioning have difficulty maintaining computer rooms at a temperature that keeps computers from overheating. Finally, some schools simply lack the space needed to develop state-of-the-art technology programs.

System infrastructure can sometimes be even more expensive than building infrastructure, but an up-to-date system can be extremely valuable. Networks and Internet access can link even the poorest, most isolated school districts to powerful educational resources such as libraries and "virtual field trips." They can also link teachers to other teachers and to professional development resources such as course materials and lesson plans.[7]

In rural school districts, it can be difficult to find the leadership and expertise needed to provide professional development, create an appropriate technology plan, and manage and maintain building and system infrastructure.

Two recent reports on the use of technology in schools highlight the importance of professional development and training for effective staff and student use of technology in schools.[8] Knowledgeable and enthusiastic technology staff play key roles in planning, designing, implementing, using, and maintaining computers and other associated technologies. Yet, because of their remote location and small size, rural communities are less likely to have local businesses or community members with technology expertise, and tend to have less success attracting such individuals to the community. It is often impractical to contract out the work due to a lack of local businesses that offer computer services.

One solution to this problem is to identify a staff or community member who, with training, will serve as the "home grown" technology coordinator. Within small rural schools, there is usually a willing faculty member with an interest in computers who can serve as a part-time network coordinator. Expectations for this individual must be realistic, however, and he or she must be given enough time and support to develop expertise.

Besides understanding computer hardware and software systems, the technology coordinator must also be skilled at training and encouraging teachers who may be resistant to adopting technology in their classrooms and administrators who completed their educational administration programs before the current emphasis on computer technologies. Without assistance, administrators with no early hands-on experience and little interest in technology may continue to de-emphasize technology and provide little direction for future applications. In urban areas, administrators have more networking or training

opportunities that allow them to learn about technology issues. However in rural districts, there may be only one or two administrators, greatly decreasing the likelihood of an administrator having technology experience.

A popular strategy used in urban areas for successfully building school technology infrastructure and expertise is partnering with local businesses. Rural schools, however, face obstacles to such partnering arrangements because few or no local companies are available to partner with or proposed partnerships do not offer enough return to the company. While there are national and international firms willing to offer software, hardware, or money for specific projects, they generally want a high return on their investment, which can most easily be shown by serving high population areas. Rural districts find it difficult to compete with urban schools in this arena because of low enrollments.

Rural schools face other common obstacles, as well. In competing for grant dollars, rural schools tend to be at a disadvantage because each staff member, from administration to faculty, is usually wearing two or three hats (duty assignments) and does not have the time or experience to write a successful grant application. Grant funding can also have a hidden downside. Frequently schools receive funds to purchase equipment but not to upgrade it. In poor, rural districts, it may be difficult to find funding for technology management and maintenance after the equipment has been purchased. Yet, none of these challenges are insurmountable, as demonstrated in Wayne, Nebraska.

Technology Integration in Wayne, Nebraska: One School's Experience

Traditional paradigms no longer dominate education in Wayne, Nebraska, a small town in the American heartland. Through an unusual collaboration, the scope of Wayne Community School District's curriculum now includes the world. The collaboration has included Wayne State College, Wayne Community Schools, Wayne Chamber of Commerce, Wayne City Council, the mayor of Wayne City, private businesses, federal and state agencies, and, especially important, the students themselves.[9]

The payoff for this collaboration has been a powerful technological infrastructure that has enabled the district to offer e-mail, audio/video on-line capabilities, take-home computers, public library access to the Internet, staff training on curriculum and technology integration, automated libraries, central office telecommuting, tech-prep curricula, and much more. The most impressive aspect of the Wayne community project, however, is its time span. In just three years, a rural school district in a town of 5,000 people was able to develop a multifaceted technology service with over 450 networked workstations for 950 students. The project began in 1992 with just $50,000 and 26 Apple IIs.

How It Began

The motivation for the district to become a regional leader in technology originated with its school board. At a regular meeting in the fall of 1991, a state review panel reported a lack of hardware and software use throughout the district. The panel recommended serious attention be directed at creating opportunities for students to learn about technology. In 1992, the superintendent organized a districtwide technology committee. The committee's goals were to set a technology vision for the district, establish goals in curriculum scope and sequence, evaluate software and hardware needs in every field and student service area, and develop a timetable with which to measure progress. Committee members included representatives from private business, Wayne Chamber of Commerce, Wayne State College, the Nebraska Department of Education, and the local school district.

Committee members met throughout the summer, and in the fall of 1992 proposed a comprehensive program to the board of education. Among the recommendations were

- a 3:1 ratio of students to computers
- a K-12 computer curriculum (separate from other fields)
- a restructured industrial arts curriculum to include industrial technology
- automation of the district's three libraries
- distance education development
- a networked computer lab
- a hardware purchasing plan focused on IBM-compatible workstations

After the recommendations were approved by the board of directors, the district was off and running. The board earmarked $50,000 in 1992 for initial costs. Combined with general fund dollars (the total district budget in 1992 was just over $4 million), the board's investment grew to $75,000, and plans were drawn for a 25-station computer lab in the high school to replace the typing room. During the bidding process to build the lab, Dennis Linster, director of Network Services with Wayne State College, asked the superintendent to delay bid openings until he could arrange for a summer session class for graduate students titled "The Wayne High Computer Lab." The course's objectives were to design, implement, and install the high school's computer lab. The initial involvement opened the doors to an unparalleled relationship between the school district and college that continues today.

By August 1993, the district had 25 networked computers installed in a new computer lab, with a central server connected via a 16-megabyte Token Ring network located in the high school's library. The cost savings enjoyed by the district were phenomenal because graduate students completed the physical labor. Estimates in savings ranged from $12,000 to $25,000. Participating graduate students benefitted from the experience and transferred the knowledge back to their own districts. Although the computer lab represented a monumental step for the district, it was only the beginning of a collaborative program that continued to blossom.

As the computer lab neared completion, the board of education wrestled with a new school budget. From the funds not spent the previous year, they transferred $101,000 into a new technology fund. The district retained its focus on the technology plan adopted in 1992 and began the following projects:

- automating the middle and high school libraries
- building a technology lab in the industrial arts area of the middle school
- fully computerizing the central office and bookkeeping system
- expanding the computer network in the high school and adding computers
- adding a CD-ROM tower to the network

- providing training for staff on the computer network, and on Internet-access instruction
- automating a lunch ticket accounting system
- implementing a distance education system in the middle and high schools with donations from Wayne State College and private businesses in Wayne

As the system grew, the college was a constant resource for project development and design. Because the size of the system was taxing available volunteer time, the district decided to hire a part-time technology director. Mike Eckhoff, a 1993 Wayne High graduate and a talented college student majoring in computer systems, became the primary supervisor of the technology implementation plan. A high school senior, Trevor Schroeder, became Eckhoff's assistant. While Eckhoff was hired on a part-time basis, Schroeder volunteered his time in order to gain firsthand experience in network operations.

Distance Education Activities

A distance education project was started in the fall of 1993 with financial support from Wayne businesses and the Wayne State College Foundation. The project's goal was to improve the high school Spanish III course by having a two-way audio/video link in real time with a school in Juarez, Mexico. The distance education mode chosen was a simple telephone line connected to a computer, a video camera, and a speaker, which allowed an interactive course to be team-taught between two sites. Faculty training was provided by TSN, Inc., in Boiling Springs, Pennsylvania, and by the Pennsylvania Department of Education at both Wayne State College and Wayne High School. Teachers from Wayne High were furnished with training, as were teachers from Juarez and Cancun, Mexico. The distance education failed due to problems in Mexico, but a second undertaking was started in the middle school with grades 6-8, using videophones connected to schools in Japan.

In March 1994, a third distance education activity began with funding from the National Science Foundation and the leadership of the Nebraska Department of Education, Division of Technology. With the guidance and assistance of director Melodee Landis, the recently released Windows version of CU-SeeMe software (developed by

Cornell University) was tested as a beta project in Nebraska between Wayne and Omaha North High Schools. The project had technical problems initially, but in further tests, the DOS version of CU-SeeMe worked well for site-to-site distance education applications.

The benefit Wayne schools reaped from the distance education project grants was procurement of the hardware and software allowing simultaneous access to the Internet from all networked computers. The district remains actively involved in pursuing distance education projects, especially those using the Internet as the connecting link. Spanish instruction continues to be provided through a satellite downlink for grades K-3. The district has benefitted most recently from a Department of Commerce grant to establish an "Anytime, Anywhere, Anyplace" distance delivery system with archived video and audio components.

A "Lighthouse" District Shines

In the summer of 1994, the Wayne County School District was chosen to receive a $91,000 award from U.S. West. This regional telephone company sought school districts committed to technology for the purpose of developing "lighthouses" to serve as models throughout the state of Nebraska. The award helped advance the 1992 technology plan and, with various installations, enabled the district to

- increase the number of K-8 workstations
- connect both middle and elementary schools to the Wayne campus with Ethernet and Token Ring networks
- create a map of the network to plan for possible future Web applications
- purchase 20 laptop computers for fourth graders to take home and use for assignments

The board of education also earmarked $60,000 in the summer of 1994 for computer technology needs in K-12. Additionally, the board had the foresight to permit the high school industrial arts department to convert to a tech-prep lab. What sparked the board's interest in restructuring the industrial arts curriculum was the 1991 state department review (mentioned earlier). The report indicated only eight percent of students participated in the industrial arts program, while 28 percent of the high school's total facility space, as well as two full-

time instructors, were devoted to it. As a result of the newly implemented tech-prep program and the positive influences of factors such as faculty support of curriculum change, the 1995 student participation in the industrial arts program grew to about 37 percent.

In the fall of 1994, several other projects were undertaken, including linking the buildings on the Wayne campuses with fiber optic cable and Novell server software, automating the middle school library, and linking 250 workstations from three different buildings in Wayne to servers located in the high school library. A staff development program was instituted by the school principals that allowed staff training in technology applications during the school day. A networked computer was installed in the teachers' professional library in the high school, a gift from Complete Computers, a local business in Wayne. A battery back-up system and network support technology were provided through a gift from Wayne State College. An audio/visual laboratory was established for students to develop commercial-quality video productions such as animated cartoons. This laboratory included digitizing video equipment, morphing capabilities, and video and audio editing equipment that are all networked to the central Novell file server in the art department.

WayNET Adds Links to Community

The Chamber of Commerce and the city became curious about the Internet. How could access to it provide benefits for rural economic development and community growth? The chamber established a strategic planning committee to study providing access to the city. Over an 18-month period, committee members administered a community survey on computer use at home, held several informational meetings at various sites, and sponsored speakers who spoke about other communities' Internet experiences. Finally, they submitted a telecommunications grant application to the state Department of Rural and Economic Development and received $2,500.

These grant dollars were used to begin developing a new community service, WayNET. Its purpose was to offer Internet opportunities to all citizens of Wayne. WayNET was administered by a committee composed of the mayor, the city administrator, the network services director from Wayne State College, the Educational Service Unit technology director, the technology director from Wayne Community

Schools, and the school superintendent. In September 1995, the city council directed $14,000 to the WayNET project, expanding the telecommunication services of the school district. With 16 remote-access lines connected to a T1 line within the Nebraska frame-relay system, patrons living in Wayne can use the Internet at their leisure. Using the computer lab in the high school, the school district's technology team trains all interested community members on how to access the remote system. This remote-access course is offered through an adult education class, a function of the extension service of Northeast Community College in Norfolk, Nebraska. Instruction is provided by Wayne State College and Wayne High School students, who are paid for their services by Northeast Community College. Participants in adult education classes are given access to the high school's remote telecommunications system for an indefinite period of time for only the cost of class registration.

The district operates an elementary school in Carroll, Nebraska (14 miles from the central server), where it is in the process of installing eight remote lines for K–4 elementary Internet access. This will bring the total number of community access lines to 24. This Internet access is a collaborative effort involving a state college, community college, state agency, city council, local chamber of commerce, special education service agency, city administration, college and high school students, and a local school district. These groups are working together efficiently to provide a service to the public that would be difficult to replicate at such a reduced cost by any one member alone.

Lessons Learned from the Wayne Experience

The community of Wayne has been extremely fortunate. It has had the right people in the right places at the right time as it developed technological services for its children and the broader community. A critical factor in the success of the overall project was the cooperation of the faculty and staff of the Wayne Community School District. The faculty wanted to encourage as much technology integration as money would allow, and they were eager to share their knowledge. The district also benefitted from using local college students and consulting with college administration on implementation issues.

The rural schools in Wayne succeeded in integrating technology into their curricula, but it took the united effort of almost every agency

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in the community. In addition, other rural districts may find they frequently must seek help from regional and state agencies. Based on the Wayne story, financial support may be available for rural districts if someone in a leadership position is dedicated to seeking funding. Once the funding is secure, then human resources can be sought.

In Wayne's success story, it is important to note that while it was exciting to put it all together, in technology the job is never done. When the 1997 school year began without a new implementation plan and a new network director, network growth began to stagnate. A new technology committee was not formed until January 1998, and the district began experiencing problems trying to maintain such a large network with so little labor support. Older machines also became outdated, and a plan had to be designed to replace and transfer them to lower-use areas. Computers in the industrial technology area had to be replaced, as did the old server.

Wayne's story is probably typical of many places in this regard. A large network presents constant problems that need continual attention. Consequently, technology plans must include provisions for ongoing management, maintenance, and upgrading of equipment. Boards of education, administrators, and teaching staffs must realize and accept that computers and ever-changing technologies are an integral part of school today and may play an even more significant role in K-12 education in the future. The Wayne experience also taught us that while technology can be used to improve subject area teaching and learning, students also need the opportunity to learn a wide range of technology applications and skills. Because teachers are the first point of contact for most students, their skills and understanding of the importance of technology are important to student success.

When districts lack a plan to integrate technology into the classroom and to train teachers in uses of technology, opportunities to improve learning and open educational vistas to the world are inhibited. Additionally, if staff development activities are not consistently focused and aligned with district-wide standards of achievement for teachers and students, then the technology services offered the students will not reach their full potential. Consequently, the district must make a significant financial commitment to train staff to implement technology into the classroom.

Conclusion

Both rural and urban schools suffer from insufficient funding to properly integrate technology into the classroom. They also face strong competition for technology employees from private industry, which can offer higher salaries and better benefits. Still, rural communities and districts share some characteristics that make it especially challenging to adopt and maintain technology applications in their schools. Examples include lack of skilled employees and community business partners, remote locations, and old buildings in need of retrofitting and repair.

However, being more difficult doesn't mean that the problem is insurmountable. Rural school districts need to be risk takers when it comes to technology. Using grants and one-time funding opportunities to get technology programs going and to experiment with multiple types of technology allows rural districts to maximize available resources. This risk taking should be coupled with (a) careful planning, (b) continual training of staff (and sometimes students) to help manage the technology program, and (c) a vision for the future. If a rural district can focus the efforts of many leaders in the community, whether they are farmers, retail dealers, or faculty and staff, great advancements can be made. There is an enormous sense of pride in small communities and, if that pride can be channeled in the right direction, the students will not be lacking in any technical preparation.

In some cases, rural schools may be able to use technology more creatively than their urban counterparts because the bureaucracy is more manageable in smaller rural districts and change can be implemented at a faster pace. Although challenging, the rewards for children from instituting a quality technology service in the school make all the problem-solving worthwhile. Once a complete technology plan is in place, an administrator can feel confident that any graduate, and eventually the community as a whole, will be able to compete in a technical world—and not be at a disadvantage due to being rural.

Notes

1. General Accounting Office, *School Facilities*.

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2. National Center for Education Statistics, *Internet Access in U.S. Public Schools*.

3. Fatemi, ed., "Technology Counts '99"; Jerald and Orlofsky, "Raising the Bar on School Technology"; and National Center for Education Statistics, *Internet Access in U.S. Public Schools*.

4. Jerald and Orlofsky, "Raising the Bar on School Technology."

5. General Accounting Office, *School Facilities*.

6. Dewees, *Improving Rural School Facilities*.

7. General Accounting Office, *School Facilities*.

8. General Accounting Office, *School Facilities*, and McNabb, Hawkes, and Rouk, *Critical Issues*.

9. For other articles and chapters by Dennis Jensen describing Wayne, Nebraska's technology program, see "WayNET: A School Internet Service," "Rural District's Partnerships Bear Fruit," and "Case Study on Technology Development."

References

Dewees, Sarah. *Improving Rural School Facilities for Teaching and Learning*. ERIC Digest. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools, 1999. ERIC Document Reproduction Service No. ED 438 153.

Fatemi, Erik, ed. "Technology Counts '99." Sepcial issue. *Education Week* 19(4) (1999).

General Accounting Office. *School Facilities: America's Schools Not Designed for the 21st Century*. GAO/HEHS-95-95. Washington, DC: General Accounting Office, 1995.

Jensen, Dennis. "Case Study on Technology Development." *Teaching in the Computerized Classroom*. 2d ed. Boston: McGraw-Hill, 1997.

_____. "Rural District's Partnerships Bear Fruit in Three Years." *T.H.E. Journal* 24(3): 69-71 (1996).

_____. "'WayNET': A School Internet Service to the Community." *From Now On: The Educational Technology Journal* 5(6) (1996).

Jerald, Craig D., and Greg F. Orlofsky. "Raising the Bar on School Technology." *Education Week* 19(4): 58-69 (1999). http://www.mff.org/edtech/article.taf?_function=detail&Content_uid1=276 (8 May 2000).

McNabb, Mary, Mark Hawkes, and Ullik Rouk. *Critical Issues in Evaluating the Effectiveness of Technology*. Washington, DC: U.S. Department of Education, 1999. http://www.ed.gov/Technology/TechConf/1999/ (8 May 2000).

National Center for Education Statistics. *Internet Access in U.S. Public Schools and Classrooms: 1994-1999*. Washington, DC: U.S. Department of Education, National Center for Education Statistics, 2000.

CHAPTER 5

Gaining Rural Community Support for a Bond Issue: A Superintendent's Experience

STEPHEN DEAN BOHRER

All public decisions involving taxpayers' dollars are political in nature. The passage of a bond issue in support of school building construction or renovation can often be one of the most difficult activities for a rural school district. A community may resist increasing their tax burden, may not support the current school board or administration, or may have misconceptions about how the money will be spent. The process of getting a bond passed requires a delicate mix of public relations, community education, and consensus building.

This chapter describes my experience as a superintendent in a rural district working to pass a bond issue to build a new elementary school. While this story describes only one community's experience with the process of gaining community support for a bond issue, I hope the lessons we learned will be useful for other rural communities working to build consensus and public support for new facilities construction.

The story began for me with a speech by W. Edwards Deming, who motivated me to study his "Fourteen Points" and to adapt them to the schools I serve.[1] His first point, "Create consistency of purpose toward

improvement of product and service," helped guide me in my work as the educational leader of our rural school district, which includes 430 students in a south-central Kansas area encompassing 308 square miles. William W. Scherkenbach expanded upon this first point by identifying top management as having responsibility for establishing the constancy of purpose to meet customer needs, set core values, make policy, and keep the organization on course.[2] These ideas guided me in my work to build community trust in and support of our local schools. This trust and the hard work of volunteers resulted in voter approval of a $4.2 million bond election to replace our 1921 elementary school.

Accepting the Assignment and Assembling a Team

"Do you have any experience in bond elections and construction of new facilities?" I was asked in the spring of 1994, during my interview for the superintendency. This question signaled district needs and the direction the board of education would have me pursue. I soon learned that on three previous occasions in the 1990s district voters failed to approve a new elementary school. The mandate was clear and my work was cut out for me.

My employment began in July of 1994. One of my main responsibilities was to begin working to gain support for building a new elementary school. My first task was to select an outside consultant who could provide objective expertise for a study of district facility needs. As research suggests, the need for a comprehensive facility study is essential.[3] I learned from talking with superintendent colleagues that G. Kent Stewart, professor of education at Kansas State University, was the person who could provide credible advice with a down-home style that our citizens would accept. We quickly signed him up for the task.

Once we had a consultant to assist with leading a study of district facility needs, the next step was to assemble a school facilities study committee. To be most effective, the committee needed representation from a broad range of citizens, including members of the four small towns included in the school district and members of different segments of the population.[4] In February 1995, with the board of education's endorsement, we wrote to the mayors of all the towns in the district, inviting each to appoint a representative to the facilities

committee. In addition, the board appointed two of its own members to serve, and the elementary and secondary principals each appointed two staff persons to serve. I invited two citizens who attended every board of education meeting (usually to offer criticism), and,as word of the new committee spread, at least three others called and asked to be on the committee. This group of 21 persons, selected to represent each community and segment of the population, was established to create conditions of trustworthiness: the board's trust in the people on the committee to direct the process, and the community's trust in the committee to represent them.

The perception of the board of education and long-time staff was that the regional daily newspaper had not been supportive of previous projects. Wrangling among citizens in the district seemed to be more interesting to the paper than the need for a new building. This time around, we invited the press to take part in the project, making them partners in the process. When invited to join the committee, David Seaton, publisher of the *Winfield Daily Courier*, declined, stating that his paper's responsibility was simply reporting and that he feared that participation on the committee would reduce the paper's objectivity. On the other hand, Davis "Buss" Merritt, the former editor of the *Wichita Eagle*, believed that instead of serving as impartial observers who have no stake in a topic's outcome, journalists should serve more as umpires or referees and become "fair-minded participants" in the public affairs they write about.[5]

In the three years leading up to the successful December 1997 election, the *Courier* published numerous stories about the project. These items were positive and accurate, and the headlines were nonsensational. Most were derived from my weekly "Friday Letter" to the board of education. Knowing that there were numerous other readers of these weekly reports, I often used a writing style that was editorial in nature rather than simply informative, in hopes that the secondary audience was influenced as well as informed.

The school facilities study committee met for the first time on Saturday, April 22, 1996. Lunch was furnished for the all-day meeting, and all the participants seemed to enjoy an interesting and positive day. Notes from the meeting show that the committee perused Dr. Stewart's 35-page facilities report furnished to the members prior to the meeting. The committee identified and discussed 10 problems

with the previous failed bond proposals, discussed the possibility of remodeling the current building (eight miles north of Burden where the secondary building is located), and agreed on several items to prepare for the next meeting. Of the 10 reasons the committee members identified as causing previous bond issue failures, the only one that I could influence was the issue of trust. Committee members said they had not trusted the information presented in the previous elections nor my predecessor's integrity.

Prior to the next meeting, an architect examined the existing building and prepared a preliminary remodeling plan that included an addition with a new kitchen, a dining area, and early childhood classrooms. The plan included a time frame to build an addition, vacate space, remodel one section, and then remodel another. The plan came with a price of $2.5 million, which was also the amount estimated for the construction of a new building across the street. The board of education and school facilities study committee saw the limitations to remodeling and began to discuss the construction of a new facility more seriously. There were two more meetings where ideas were discussed.

At some point, the committee proposed surveying registered voters and the board of education endorsed this plan. Studies have shown that district surveys are an excellent way to determine the type and level of local support.[6] The survey was mailed in January 1996 and the results were discussed at the committee's final meeting on May 9. The survey showed that 42 percent of the population supported a new building in Burden, six percent supported a new building in Cambridge (four miles east of Burden), 19 percent supported a new or remodeled building in Atlanta (eight miles north), while 33 percent wanted to do nothing at the time.

At the May 1996 meeting, the committee realized that the option of a new building in either Burden or Cambridge had the combined support of 48 percent of the voters who responded. Assuming that the Cambridge voters would prefer a new building in Burden over Atlanta, and considering a total of 1,250 registered voters, this presumed level of support left a majority vote for a new elementary school in Burden approximately 26 votes short of passage. Any other combination of voter preference would be much harder to get ratified. The school facilities study committee made a recommendation to the

board of education to build a new building in Burden. The board endorsed the recommendation the same month, calling for a bond election by the end of 1997. This gave us 18 months to design a building and build support prior to an election.

I spent the next six months researching several architects, leading up to a planned selection in November 1996. At an annual planning session in early November 1996, the board asked me to postpone the selection because of the poor agricultural economic conditions in the district. Through the summer and fall, cattle prices had fallen and the wheat crop had been disastrous. We waited six months for the next board of education election and improved agricultural prices. By August 1997, the board was ready to proceed. To speed up the process, the board asked me to select an architect and bond finance advisor.

Because of my previous research on architects, it was easy to recommend Ken Helmer of Howard & Helmer Architects in Wichita and financial advisor Steve Shogren of Ranson & Associates. Shogren pointed out that we had to move fast to have a special election in 1997. Helmer had been involved in one of the previous failed elections, so he had preliminary drawings available for the desired building. At a September meeting, the board approved a resolution calling for a bond election to build an elementary school and requested permission from the Kansas State Board of Education to hold the election and exceed the bond indebtedness limit of 15 percent of district valuation.

Working with the county clerk and a law firm experienced in preparing school bonds, we began preparing the election forms and bond finance documents. The financial advisor discussed the pros and cons of a mail-in ballot with the board and said that with a 10-day time frame to mail them back in, it was hard to focus a campaign to peak at the right time. The board chose, therefore, to hold a conventional election with voting to take place in each of the four towns.

By the October meeting the board had firmer budget and financing plans. The board reduced the budget by $50,000 to $4.2 million, which allowed the expected mill levy to remain at 19 mills for 23 years. The board thought an upper limit of 20 mills would be more important to the voters than the actual cost of the project. The board had examined a plan that included a large competition gym, but the

cost was $1.1 million higher, so they chose to have a smaller gym seating only 300. This was sufficient for practice and nonvarsity contests, as well as elementary physical education, but did not include a stage or performance platform. The board by this time had examined four versions of the building and made suggestions, as had the elementary school staff. The board chose a floor plan and exterior design to promote in the election.

Invitations to an election planning committee meeting were mailed to supporters on the school facilities study committee, as well as to others the board of education suggested based on previous bond issues. These supporters were also invited to the board meeting where the design was chosen. Unfortunately, few attended. Central Elementary School principal Joe DeWeese and I concluded that those on the committee or involved in previous elections were too tired to devote their energy to the issue yet again. He identified three couples with children in the elementary school he thought would be interested and we called them. All three enthusiastically agreed to serve and formed the nucleus of what our financial advisor named the KIDS (Keep Improving District Schools) committee. These highly committed individuals met in early October 1997, along with a few other volunteers and two board members (only two to avoid violation of the Kansas open meetings law). Less than eight weeks remained to design a campaign, produce printed materials, and promote a large voter turnout.

At the first meeting of the KIDS committee, our financial advisor presented a set of materials that gave factual information about the district's current mill levies (general fund, capital outlay, recreation commission, etc.). He also provided information on the history of levies in our district, the expected impact of the new bond on the price of various homes in the district, and the expected impact on each parcel of 160 acres of pasture or worked land. He asked the committee members to write out reasons why the new building was needed and to name the subcommittee on which they wanted to serve—voter registration, ways and means, information central, or community relations.

The voter registration subcommittee targeted unregistered citizens, sent letters to Central High School graduates in college and to 18-year-old high school seniors, and coordinated phone calls prior to the

election. The ways and means subcommittee raised money to pay for any functions that were forbidden expenses of the board of education and controlled the expenditure of the funds in a coordinated budget and record keeping process. The information central subcommittee coordinated the production of brochures, information sheets, newspaper articles, letters to the editor, and advertisements. The community relations subcommittee handled public meetings, civic group presentations, and door-to-door visits. Individuals volunteered to serve on the subcommittee within which they felt most comfortable. The whole KIDS committee consisted of only about ten persons, so each subcommittee had overlapping and multiple responsibilities. The volunteers were few enough in number that they could also serve as the steering committee, making the big decisions about which projects to take on and assigning tasks to the subcommittees.

The steering committee met weekly leading up to the election, held December 2, 1997. One parent, Darren Wesbrooks, took on the duties of overall chairman and performed magnificently. He was on the phone constantly, checking with committee members to assess progress on their assigned tasks. Updated fact sheets were distributed a couple of different times to committee members, to ensure that the most accurate information possible was presented. A decision was reached early in the process not to have large scale public meetings, but to concentrate on smaller gatherings. This prevented a few individuals from monopolizing each of the sessions, as they would not necessarily know about and attend each meeting.

Sessions were offered at each of the four town's monthly senior citizen luncheons. The Burden senior citizens appreciated the presentation and made comments like, "It's about time" and "Hurry up and get it built. I don't have much time left to help pay for it." The Atlanta senior citizens were gracious, but obviously not generally supportive. A presentation scheduled at the Cambridge Senior Citizen Center luncheon was canceled a few days prior to the event, due to "a prior commitment to a singing group." The Grenola senior citizens first said "yes," but called back to cancel, saying "We are not allowed to participate in partisan politics." At each presentation a volunteer described the conditions of the current building, and the principal reiterated the advantages and enhanced features of a new building. The board president talked about the district's work on school

improvement and how the board was committed to student performance, as well as protection of district resources (including taxes). Then the superintendent showed wall chart-sized posters of the district's tax history and the mill levy effects of the proposed new building.

A week before the election, one public meeting was held in Cambridge, a community that had been supportive in the previous elections and considered neutral territory in this one. This meeting allowed anyone who had not already heard the information to do so and eliminated any chance for citizens to say they had not had an opportunity to become informed. Apparently, most voters had made up their minds by then, as attendance included only the election committee, four individuals in opposition, and about three other persons. The meeting format was the same as in previous presentations and was over in about an hour with no "bloodshed."

To help improve voter participation, the voter registration subcommittee purchased voter registration lists from the election commissioners of the three counties with property in the district. These names were placed into a computer database and compared with parent roster lists furnished by the secretaries of the two schools. Personal calls were placed to all parents who were registered, even though their position on the issue was not known. As with all of the election committees, members were restricted by state law from taking a position favoring the election. Thus, calls were informational only. It was assumed that most parents would be supportive.

By checking the lists, subcommittee members also identified persons who were perceived to favor the bond election but were not registered. They, too, were called and encouraged to register. Registration was made easier by having a sign-up table at a football game and articles in the area's weekly newspaper telling everyone how to register. High school seniors who had turned 18 prior to the election were called to the school office, where they were registered without being encouraged how to vote. Through the high school's senior tracking service, letters were sent out to college-age, former students, updating them on current high school activities (homecoming queens, football game reports, etc.) and providing information about the approaching bond election. They were encouraged to vote and told how to request an advance ballot without being told how to vote.

All of these efforts were to help assure a large voter turnout. Large voter turnouts can often help assure passage of bond issues.[8] Our financial advisor had advised us that in general, a third of all citizens would usually vote "no," and a third would usually vote "yes," so we needed to direct our efforts to inform and convince the undecided third. Others have said much the same in suggesting that bond promoters ignore "no" voters and work to create "yes" voters.[9]

One of the most entertaining and effective promotional events was staged by the district board of education president. He prepared two floats for the city of Burden's Sunflower Festival in early October. One had his daughter dressed in pioneer clothes using a washboard in a tub. The second featured him dressed in long underwear, an old straw hat, and cowboy boots. He was sitting in an outhouse loaded on his flatbed truck. He rode along opening the privy door throwing out corn cobs. Both floats had large signs that read, "This works, but we can do better. Think about it." The floats were significant because this man may be the most successful farmer/rancher in the district and will pay more taxes for the new building than nearly anyone else. As a Christian elder who is politically conservative and known for his sense of humor, his willingness to be so visible in the election process was all the more powerful. He also worked hard with the voter registration efforts.

The information central subcommittee edited several versions of a mail-out brochure prior to printing, and created a one-page fact sheet that listed the reasons for the new building, as well as its costs and payment plan. One evening the fact sheets (along with a sketch of the floor plan) were hand carried by committee members and other volunteers to every house in Burden. If home, the residents were given a chance to ask questions and talk and were encouraged to vote, again without being told how to vote. The 14" x 25" three-color brochure was mailed one week prior to the election to every post office box and residence in the district. It again gave a drawing of the building, a floor plan, reasons for need, and an explanation of financing. It was paid for with district monies, as it did not take a position but was an information piece only. Members of this subcommittee also wrote a couple of letters to the editors of the papers and were prepared to write more had anyone submitted letters in opposition.

The Friday before the election, the *Winfield Daily Courier* urged voters to approve the bond issue. In an editorial, the *Courier* characterized a positive vote as being right for the kids, district, and town of Atlanta. The editorial ran in the same edition as a feature article that described the new building, provided evidence for its need, and included quotes by those in opposition and support. The article was featured on the front page and included a large drawing of the floor plan. The paper's positive coverage was gratifying after three years of hard work and it caused the election campaign to peak at just the right time.

One member of the ways and means subcommittee solicited every business in Burden for money to promote the election. Most told her that they would not take a favorable stand for fear of retribution by their citizens. She also turned to individuals and families for support and was able to raise about $900. This was allocated for "Vote YES" advertisements in the two local weekly papers in the district, as well as two ads in the *Courier* newspaper. These appeared two weeks and one week ahead of the election and were offset by ads by the opposition, which also mailed one-page information sheets. The subcommittee was amused by the main tag line used by the opposition: "Show you care . . . vote no." The district's privately-funded mailing featured a more uplifting line; "The right thing to do. . . the right time to do it!"

Four days before the election a "Vote YES" first-class postcard was mailed by the community relations subcommittee to every household with registered voters. The costs of printing and postage were picked up by the ways and means subcommittee. The post card said:

> VOTE YES ON TUESDAY
>
> You have an opportunity December 2nd to vote for a new
> Central Elementary School.
> The kids deserve it, and the timing is right.
> Our Children . . . Future . . . Responsibility!
>
> Paid for by the KIDS Committee with donated funds
> (Betsy Whitehill, Treasurer)

The Sunday evening before the Tuesday election, volunteers made over 200 phone calls to newly registered voters and others who were thought to favor the election.

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On December 2, 1997, voters passed the first bond election in the district since 1971. The issue passed by 40 votes (52 percent "yes" to 48 percent "no") out of a total of 846 votes cast (65 percent of those registered). There were many factors that contributed to this election outcome. The hard work of the committee personnel, favorable agricultural conditions, citizens' improved trust in the board of education's leadership, and the quality of instruction in the district all contributed to a positive outcome.

The district's success was aided by the creation of a long-range plan that convinced citizens the need was legitimate.[10] The plan also provided a financial description that was understandable and adequate for the desired construction, yet did not deny the ongoing needs for instruction. In addition, citizens participated in determining the need and promoting the election.[11]

Lessons Learned

While the story told here is specific to one rural community, we learned several lessons about passing school bond issues that could be useful to all communities. First, credible, trusted leadership from within the school system is important. The superintendent must be sure that his or her actions are not viewed as self serving, but rather as serving the overall good of the school. The board of education must fully support a bond proposal. The school staff must also see the necessity of a bond issue and actively support its passage. Second, community outreach and communication are critical parts of the political process. A well-orchestrated public relations campaign can be helpful here. This involves speaking to the public, including talking to local civic clubs, the media, ministerial alliances, local "politicos," and senior citizens. The importance of sharing information with senior citizens cannot be overstated. Senior citizens are very likely to vote and do not always have clear information about ballot initiatives. It is also important to include community members in the planning stages of the projects and to make sure that the planning committee includes members from all segments of the affected communities. In addition, it is useful to involve local newspapers in the planning process, if possible. They have the ability to write up information and distribute it to a wider audience. All of these activities will ensure that communication between the planning committee and

the broader community is effective in building and maintaining community trust. Local citizens must feel that their input is valued.

A final lesson learned is the importance of volunteer labor. Our success would have been very difficult to achieve without the hard work of a group of volunteers. These committed individuals made an invaluable contribution to the effort.

Conclusion

The hard work during the short campaign period was a strain on all involved, but it was rewarding, too. The voters perceived the campaign to be honest and convincing. A mandate would have been great, but given the difficulty of coalescing four small towns that were still upset over consolidation 30 years ago, a 4.5 percent margin seemed huge. Partly because the bond election was successful, those involved concluded it was a fun and worthwhile undertaking. Some predict that within six months of the new school's opening, no one will admit that they voted against such a beautiful, effective building. I hope that prediction comes true.

Notes

1. Deming, *Out of the Crisis*. Also see Bradley, *Total Quality Management for Schools*, and Crawford, Bodine, and Hoglund, *The School for Quality Learning*.
2. Scherkenbach, *Deming Route to Quality and Productivity*.
3. Conyers and Francl, "We Turned to Madison Avenue"; Fielder, "Bond for the Record Books"; Holt, "Critical Factors That Affect the Passage of School Bond Elections"; Surratt, "Passing a Bond Issue"; and Taylor, "Bond Elections."
4. Holt, "Critical Factors That Affect the Passage of School Bond Elections," and Taylor, "Bond Elections."
5. Merritt, *Public Journalism and Public Life*.
6. Conyers and Francl, "We Turned to Madison Avenue," and Surratt, "Passing a Bond Issue."
7. Studies have shown the importance to success of a cadre of highly committed individuals. See Holt, "Critical Factors That Affect the Passage of School Bond Elections," and Surratt, "Passing A Bond Issue."

8. Conyers and Francl,"We Turned to Madison Avenue"; Henry, "Help for Passing Bond Referenda"; and Holt, "Critical Factors That Affect the Passage of School Bond Elections."

9. Carter, "How to Blow a Bond Issue;" Conyers and Francl, "We Turned to Madison Avenue"; and Henry, "Help for Passing Bond Referenda."

10. See Taylor, "Bond Elections," about the importance of long-range plans.

11. Holt, "Critical Factors That Effect the Passage of School Bond Elections," and Taylor, "Bond Elections."

References

Bradley, Leo H. *Total Quality Management for Schools.* Lancaster, PA: Technomic, 1993.

Carter, Michael A. "How to Blow A Bond Issue—or Not, If You'd Prefer." *Clearing House* 68: 289-92 (1995).

Conyers, John G., and Terry Francl. "We Turned to Madison Avenue for Tips on Selling Our $64 Million Bond Issue." *American School Board Journal* 176 (October 1989): 27-28 .

Crawford, Donna K., Richard J. Bodine, and Robert G. Hoglund. *The School for Quality Learning: Managing the School and Classroom the Deming Way.* Champaign, IL: Research Press, 1993.

Deming, W. Edwards. *Out of the Crisis.* Cambridge: Massachusetts Institute of Technology, 1986.

Fielder, Donald J. "A Bond for the Record Books." *American School Board Journal* 182 (October 1995): 35-37.

Henry, Jeannie M. "Help for Passing Bond Referenda." *School Business Affairs* 53 (December 1987): 25-27.

Holt, Carleton R. "Critical Factors That Affect the Passage of School Bond Elections." *School Business Affairs* 60 (August 1994): 33-37.

Merritt, Davis. *Public Journalism and Public Life: Why Telling the News is Not Enough.* Hillsdale, NJ: Lawrence Erlbaum, 1995.

Scherkenbach, William W. *The Deming Route to Quality and Productivity: Road Maps and Roadblocks.* Washington, DC: CEEP Press Books, 1988.

Surratt, James E. "Passing a Bond Issue." Paper presented at the annual meeting of the American Association of School Administrators, New Orleans, February 20-23, 1987. ERIC Document Reproduction Service No. ED 282 334.

Taylor, Kris. "Bond Elections: Running a Successful Campaign." *Spectrum* 2 (fall 1984): 3-9.

CHAPTER 6

Maintaining Respect for the Past and Flexibility for the Future: Additions and Renovations as an Integrated Sequence

DAN SWEDBERG

Changes in population, funding, and political paradigms are forcing rural school districts to consider a broad range of options for upgrading rural school facilities. To respond to diverse demands, districts must choose from a broad menu of possible activities, including the renovation of existing school buildings, additions to existing school buildings, the construction of new facilities, and even consolidation with other districts. Consolidation of districts and total replacement of facilities will, at times, still be needed. Before moving to such a drastic change, however, the potential of addition and renovation projects needs to be fully examined. Additions or renovations to an existing school facility can often meet the evolving needs of a school or district while preserving the historical significance of the building and providing community members and students a link to their past.

Rural Schools and Their Communities

From the earliest history of organized education in rural America, schools have formed the heart of rural community life. Early rural schools were used for a variety of entertainment and social events,

including theatrical performances, political meetings, and other community gatherings. They also provided social services, hosted worship services, and even housed out-of-town guests.[1] In the early 1900s, country schools served not only community children, they also served adults by providing evening education programs, sometimes referred to as moonlight schools. This close connection between school and community has been heavily documented in the literature throughout the past century.[2]

The connection between schools and communities is still so great that one could argue that they are often mutually dependent. The rise or fall of the social and economic conditions of a community will be greatly reflected in its schools. Similarly, removing a school from a community can have a significant deteriorating effect on the community's socioeconomic well being.[3]

In examining community, it is important to recognize the significance of the family and intergenerational connections. In a rural community, the values of family and community are often tightly interwoven. Thus, schools play an important role in a socialization process that is passed along from one generation to the next. But schools also provide opportunities for students to broaden their horizons beyond their own backyard. In a small rural community, this exploration can be tempered by a rich framework of family, friends, and acquaintances, all of whom monitor and provide feedback to a child regarding his or her actions.

There are many ways to describe the strengths of a rural, small town environment. Recently, Western Carolina University researchers Mary Jean Herzog and Robert B. Pittman conducted a survey of rural high school students in Cullowhee, North Carolina. The students were asked to describe what comes to mind when they think of "rural areas." The majority of responses were positive, with one student stating that he thinks of "common people, good people, love of land, beautiful scenery, men without shirts, kids without shoes, women without make-up, many people without a care in the world, small churches, not much traffic on dusty back roads." Responses emphasized the importance of relationships and relatedness, and references to nature were common. The most common words used in student responses were *peaceful, safe, warm*. The words *closeness, comfortable, friendly, home, quiet*, and *relaxing* were also used frequently.[4]

Paul Theobald and Paul Nachtigal suggest that rural environments are important in shaping a rural student's sense of self:

> Knowledge of place—where you are and where you come from—is intertwined with knowledge of self. Place holds the promise of contributing to the development of a meaningful identity . . . the more students understand their community and its environments—its social structure, its economy, its history, its music, its ecology—the more they become invested in that community.[5]

One way to define the purpose of education is to examine the Greek root of the word *school*. In their article on the political economy of rural school consolidation, Alan J. DeYoung and Craig B. Howley explain that the Greek word *schol* refers to contemplation, the suspension of activity, and leisure. DeYoung and Howley distinguish between schools as important places for people to create their culture, and *schooling* as an attempt at systematic instruction of predetermined bodies of knowledge. According to these writers, schools are places where meaning is created by the participants; in contrast, *schooling* is an approach to education that involves systematically providing predetermined knowledge.[6]

In the October 1996 issue of *Leadership News*, AASA executive director Paul Houston references a literature review conducted by Kathleen Cotton at Northwest Regional Educational Laboratory[7] that

> shows that small schools are superior to large ones on almost every measure . . . when small schools are not superior to large ones, they are just as good. This is true for both elementary and secondary schools, and is true for students of all ability groups and in every town and city in this country.[8]

Mr. Houston concedes that large schools offer more varied activities than small ones, but the average student in a large school does not take advantage of these opportunities. A benefit of rural schools is that they are naturally small and commonly include cross-age teaching, using the community as the curriculum. Rural schools also appear to support both experimentation and an interdisciplinary method of teaching.

Removal of Schools from Community

The symbiotic nature of communities and schools is an important part of our rural American culture. Yet, rural communities have faced a long-term threat of losing their local schools, as policies favoring school consolidation continue to be implemented across the nation. School and district consolidations have already closed many small schools and eliminated school boards serving rural populations. In 1913, there were 212,000 one-room schoolhouses in the United States, which educated half of the total national enrollment of school children. In 1994, only 428 of these schools remained in operation.[9] By the end of World War II, the number of school districts in the United States numbered a few more than 100,000.[10] By the late 1990's, there were approximately 14,400 districts across the nation.[11]

Two critical issues that have driven consolidation are the question of school size and the definition of educational goals. The call for larger, consolidated schools began in the early twentieth century with claims that larger schools allow for better educational opportunities due to a broader range of course options, better economies of scale, and lower operating costs per student.[12] However, school consolidation remained controversial throughout the twentieth century.[13]

Today, many states are struggling to define the minimum effective school size. Minnesota legislation on cooperative school grants and revenue sharing has limited participation to those schools averaging at least 60 persons per grade level, which would translate into a grade 9-12 high school minimum size of about 240 students. In the guidelines for those considering consolidation, a one-section elementary school, or approximately 175 students in a K-6 school, is considered a minimum size.[14]

National Education Goals

Goal 1: Ready to Learn

By the year 2000, all children will start school ready to learn.

Goal 2: School Completion

By the year 2000, the high school graduation rate will increase to at least 90 percent.

Goal 3: Student Achievement and Citizenship

By the year 2000, all students will leave grades 4, 8, and 12 having

demonstrated competency over challenging subject matter including English, mathematics, science, foreign languages, civics and government, the arts, history, and geography, and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our nation's modern economy.

Goal 4: Teacher Education and Professional Development

By the year 2000, the nation's teaching force will have access to programs for the continued improvement of their professional skills and the opportunity to acquire the knowledge and skills needed to instruct and prepare all American students for the next century.

Goal 5: Mathematics and Science

By the year 2000, United States students will be first in the world in mathematics and science.

Goal 6: Adult Literacy and Lifelong Learning

By the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.

Goal 7: Safe, Disciplined, and Alcohol- and Drug-Free Schools

By the year 2000, every school in the United States will be free of drugs, violence, and the unauthorized presence of firearms and alcohol and will offer a disciplined environment conducive to learning.

Goal 8: Parental Participation

By the year 2000, every school will promote partnerships that will increase parental involvement and participation in promoting the social, emotional, and academic growth of children.[15]

At the national level, federal goals calling for dominance in global competition have been cited by some educators who promote larger schools (see box this page). Certainly Goals 5 and 6 speak to a desire to become highly competitive in the world economy through our educational achievements. Educators, under pressure to respond to these goals, have sometimes argued that larger schools, formed through consolidation, would help make students more globally competitive by increasing their opportunities to take specialized and

accelerated courses, including non-mainstream languages such as Russian or Japanese. Defenders of small schools, especially small rural schools, suggest that the many unique community-level cultures found in rural areas throughout the country should be preserved, and are more likely to be protected in smaller, locally controlled schools. These proponents argue that our national culture benefits from the diversity found in rural areas.[16]

Another force at work in the widespread closure and consolidation of rural schools has been the migration of rural people to urban areas and consequent falling rural enrollments. Currently this trend seems to be reversing, due at least in part to advances in communication technologies. Today, the nation's rural and small town areas are seeing some net in-migration.[17] This shift was described in a recent issue of *Time* magazine. Journalist Eric Pooley reported an increasing number of suburban people moving to small towns, primarily to obtain "quality of life" benefits often identified with small town living.[18]

This population shift is not without its problems, however. Often newcomers to rural communities have different expectations for their schools than do long-time residents. The *Time* article recounts a rancorous school board meeting in which old-timers complain about newcomers' efforts to "enlighten" the local folks. Although sometimes contentious, open dialogue can foster the retention of basic community values while improving the quality of a rural school experience. Whether initiated by newcomers or old-timers with a vision, this sort of dialogue is consistent with the integrated sequence approach to school facility improvement described later in this chapter. The ability to share core values, yet challenge others to consider improvement, is an indication of healthy communities and healthy schools.

The Big Question: Replace or Renovate?

In her 1961 book, *The Life and Death of Great American Cities*, Jane Jacobs describes the large-scale disasters created by urban renewal projects that eradicated entire urban neighborhoods and left gaping holes of nondevelopment due to years of inaction. Jacobs observed that even when fully rebuilt, many of these new neighborhoods lacked the flavor and cohesiveness found in the destroyed communities. As an alternative, she proposed constant renewal of neighbor-

hoods through intermingling buildings of all ages. This constant renewal provides a vitality that is brought about by new construction and the progress associated with it, while also preserving the historical and cultural flavor of the area.[19]

Jacobs' observations also have application for rural school construction and renovation projects. Several national and state policies favor consolidation or total replacement approaches over renovations and additions. However, as public opinion evolves beyond the "bigger is better" model and appreciation grows for the benefits of small rural settings, many school districts have become interested in preserving their existing school buildings.

A variety of obstacles can stand in the way of such projects, including changing building standards, lack of building documentation, concealed conditions, and hazardous materials. But for many schools, these obstacles are nonexistent or can be resolved. With careful organization and planning, the challenges of an addition/renovation project can be managed, leading to predictable and successful results.

One approach, the integrated sequence approach to renovations and additions, provides the vitality associated with new construction, while maintaining a sense of continuity with the past and preserving historically significant community symbols.

It does this by drawing upon features of an existing facility's history and design. Upon completion, the old and new elements work together synergistically as one composition, while also providing a space that satisfies current school needs and anticipates future needs. Often, these renovated buildings have the potential of bringing more meaning to a student's life than a brand new building and can be updated at a competitive cost compared to new facility construction.

The Integrated Sequence Approach

A rational way to consider design options is to examine the value comparisons of two alternatives: (1) constructing a new building or (2) providing additions and renovations to a building of similar size in an integrated sequence at 10-year intervals over a 40-year period. There are certainly cases when a full replacement is the best choice. However, the integrated sequence approach to additions and renovations provides a funding advantage because it allows the deferral of

some expenditures to future years. This is a financial benefit if the growth of a school's resources exceeds the rate of inflation of development costs. Renovating and adding onto buildings in 10-to 12-year stages also allows renovations to address today's and tomorrow's priorities. This stepped development allows communities to plan for flexibility and future expansion, leaving some options open for later decision making.

The integrated sequence approach begins by *mining the existing building*; that is, conducting an analysis to find code-related and technical building issues and, more importantly, discovering the essence of the existing building and its major contributions to the end product. This first step includes documenting existing conditions. Even when early design documents are available, they often present a sketchy rendering of the building compared with its current condition. Conducting a thorough assessment of the current condition of the building requires resources and, at times, special tests, to gather data about the suitability of various structural elements for future use. This step helps the architect to define design parameters to guide the final composition. Essential elements included in the final design preserve the building's historical significance, maintaining ties to generations of students in the past. An added benefit in renovation design is the opportunity it gives the architect to interview the school's students, who often willingly express their preferences and identify meaningful aspects of the school's design.

Often a historic facade forms the signature in defining a new entry space. One example of this can be found at the St. Joseph's Home for Children in Minneapolis, Minnesota. The facade for the new building has been "mined" out of the existing, historic facade. Another example is the strategically located exterior light well at Owatonna High School in Owatonna, Minnesota. This exterior light well was transformed into an interior atrium and student center, forming a heart to the building and connecting three levels to provide directional orientation in a dispersed floor plan. In Athena, Minnesota, a unique underplaza expansion in front of the historic old school answered the need for sizable new construction on a tight urban site.

The integrated sequence approach also supports reusing older school buildings for related community functions, even if the buildings can no longer serve as schools. Many school-related functions

such as district administration; community education; staff development; and early childhood, alternative, and at-risk programs can be creatively housed in existing structures. Other common alternative uses of abandoned school facilities include community cultural centers, recreational centers, or senior centers. Such uses can take advantage of schools' existing infrastructure, including gymnasiums, pools, auditoriums, kitchens, and shop spaces. Because the existing school building is frequently placed in a strategic location in the rural community, it is well suited to serve as a community center. However, even if a building must be demolished, distinctive elements of the structure often can be salvaged for reuse in new structures, providing some continuity with the past.

Building Codes and Standards

Both state and federal standards can provide challenges to the successful implementation of a school renovation or addition project. Older buildings may not meet new state building codes. The state of Minnesota provides one example. Its Department of Children, Families, and Learning provides a *Guide for Planning New and Improved School Construction Projects in Minnesota* that outlines some building requirements. Issues relating to consolidation, replacement, or reuse in upgrading a facility are covered in the guide.[20]

The following points illustrate just three building regulations that may pose problems for school addition or renovation projects:

- If the cost of bringing existing facilities up to code/standard approaches 60 percent of the cost of replacing the facilities, "a school district needs to replace the facility."[21]
- High school classroom utilization is suggested at full utilization minus one class period (for teacher preparation) or at 80 percent of full utilization.[22]
- Minimum recommended school site sizes are 10 acres for elementary schools, 25 acres for K-8 or middle schools, 35 acres for K-12 or small high schools, and 60 acres for large high schools (more than 2,000 students) with added size for larger enrollments.[23]

All of these standards could limit the options available in rural school renovation projects. Yet, there are many creative ways to

accommodate state standards and still carry out a successful project. An unwritten guideline in the Minnesota code allows planners—in cases where an otherwise appropriate addition/renovation project does not meet minimum site size—to include plans that resolve deficiencies of the site. This is important when an existing school site is ideally located in the community, but the site size is too small to meet the standards. Plans must be created to ensure that the site is adequate for the current and future life of the school, and provides flexibility to accommodate future growth. Adequate space is needed for coordination of vehicular drop-off and parking, and for a variety of other needs that may increase over time, such as athletic fields and additional parking. Newly emerging regulations such as Minnesota's requirement for on-site storm water detention must also be considered. On sites already stressed by limited size, planning storm water detention ponds that can be integrated into the site design can provide challenges.

Another recent regulatory issue complicating addition/renovation projects is the changing code requirements on structural live loads. Live loading (the weight of people, furnishings, rainwater, snow, etc.) of floors and roofs has in many instances increased above the loading required at the time many older buildings were constructed. In Minnesota in particular, the effect of drifted snow loading (snow banked into corners at vertical surfaces) has made it difficult to build even a new structure higher than existing adjacent roofs. Reinforcement of an existing structure may be required, and the costs and benefits of such a plan need to be analyzed carefully.

In one example, when the wood window frames were removed for window replacement in a 60-year-old three-story brick veneer building, it was found that the frames alone were supporting the wind loading on the brick. All of the original brick ties had rusted through and the brick veneer had no horizontal support. This required either new mechanical support or full replacement of veneer. This example points out the importance of thoroughly analyzing an existing building before deciding upon a renovation plan.

Federal legislation and standards can also affect the school renovation process. For example, the *Americans with Disabilities Act* has had a significant impact on the reuse of older facilities. Older buildings with larger spaces and fewer floor-level complications generally fare

better in reuse, but areas such as exterior steps, entry vestibules, room doors, hall widths, toilet areas, stairs, ramps, and elevators often require corrective action. Places of assembly such as gymnasiums and stadiums need to accommodate wheelchairs and provide access for disabled persons to view action at sporting events. Many older buildings still need to be upgraded to meet these requirements.

Flexible Design

Flexibility and adaptability of facilities need to be considered at all stages of design. Flexibility must be built in to allow for potential changes and expansions. William Peña outlined three basic elements of spacial flexibility: *expand ability*, i.e., space is easy to expand; *convertibility*, i.e., space is easy to reconfigure; and *versatility*, i.e., space is easy to use in multiple ways.[24]

One-room schoolhouses were amazingly versatile. Their space was very similar to the studio/lab room model, which is the most flexible space in modern school planning. Many things have changed since the original model. One example is the hot stove, which has been replaced by a variety of other items. But the concepts of movable seating, multiage grouping, and flexible classroom space are still used today. The original one-room schools even resemble current cutting-edge teaching spaces that integrate small group spaces, teacher offices, and small lab spaces adjacent to an open classroom space. Adjustable and adaptable with multiple concurrent activities, the schoolhouse concept continues to inspire generations of architects and school facilities planners.

Environmental Concerns

Disruption of long-dormant hazardous material and other environmental problems within a building is often unavoidable when renovations or additions are planned. Asbestos in building and pipe insulation, fire proofing, and floor and ceiling tiles is a common problem. Other problem areas include lead content of paint and leakage from below-ground oil storage tanks that can lead to soil contamination. Soil contamination can affect not only how a building can be placed on a site, but also site surface improvements. In addition/remodeling projects, site development expenses comprise the one area where costs can differ wildly from one location to another.

Air quality is another major topic in many school districts. Current standards for fresh air volume per student are now three times greater than volumes required in the early 1980s. Surprisingly, buildings built before 1970 often perform better on this score than buildings constructed more recently. Several factors account for better air quality in older facilities. Older materials are more inert and less likely than newer materials to have problems with off-gassing. Older facilities may also have been more loosely built, with air infiltration providing a degree of freshness not found in younger, tighter structures built to conserve energy. Buildings constructed between the early 1970s and early 1980s have posed the most difficulty with air quality due to a tighter building envelope and consequent reductions in fresh air. These changes were developed in response to the national energy crisis of that era.

Implementing an Addition or Renovation Project as an Integrated Sequence

The planning process. The integrated sequence approach to the educational facility planning process, focused on obtaining "the biggest bang for the buck," consists of a series of steps first developed by architect Bruce Jilk at HGA Associates.[25] The first steps, focused on plan formulation, include

- Organizing participants
- Gathering all relevant information and developing a needs analysis based on this information
- Collaborating with community stakeholders to develop all imaginable options to meet needs and to establish ranked and weighted criteria by which all options are judged
- Refining the most promising options and developing financial evaluations of each
- Developing consensus about which option to choose

Following these steps, which allow for both an evaluation of design issues and cost analysis, commonly provides a strong framework for deeper understanding of building renovation issues and their interrelatedness. This planning approach does not always lead immediately and directly to a final solution. Design criteria and other issues can always evolve as the study progresses. The process does, however,

set up a series of indepth examinations of needs, possible solutions, and analyses of benefits and costs to help uncover new approaches. When an option is finally chosen, a strong consensus can be expected as a result of using this process. With such a thorough approach, all committee members can explain how issues of value and cost were established.

This planning process begins by calculating the life expectancy of existing buildings. Life expectancy is defined as the time, in years, that a building can be used before improvements reaching the amount of its initial cost would be required to keep it in operation. The life expectancy of a freestanding new building may be estimated at 40 years. For building additions, life expectancy may be estimated at 30 years for an addition that is 50 percent the size of a 30-year-old building. This is calculated as follows: for a 30-year-old building, there are 10 good years remaining, plus 50 percent times 40 years (20 years), which equals a total of 30 years. To add 25 percent to the size of a 40-year-old building, the estimated life expectancy is 10 years. This is calculated as follows: there are 0 years remaining, plus 25 percent times 40, which equals a total of 10 years. Although this is a helpful formula, as in any addition/renovation project, significant judgment from past experience is required to review the age and evaluate the present condition of buildings slated for improvement.

Potential elements to consider for reuse. In general, elements of a building most likely to be available for reuse can be ranked (from most reusable to least reusable) as follows:

1. Site utilities
2. Structure
3. Site surface features
4. Demountable walls
5. Doors and windows
6. Mechanical systems (plumbing)
7. Roofing, insulation, and waterproofing
8. Interior partitions, doors, and frames
9. Electrical systems
10. Ceiling systems

11. Floor and wall finishes
12. Fixtures and equipment
13. Communications and electronic equipment
14. Furnishing items

Elements are more likely to be saved for reuse the higher they are ranked on this list, unless there is an unusual significance associated with a particular element.

In determining the value of different components of an existing two- to three-story junior high school building, the information shown in Table 6.1 was drawn from the 1997 Means National Cost Index: [26]

Table 6.1
Value of Building Components

System/component	Percent of subtotal
Foundations	3.0
Substructure	2.3
Superstructure	14.4
Exterior closure	14.5
Roofing	2.7
Interior construction	23.8
Conveying	0.8
Mechanical	24.0
Electrical	13.5
Special construction	1.0
Total	100.0

One example of a way to use this formula is to consider a building where 100 percent of its foundations, substructure, and superstructure were to be reutilized, but only 50 percent of its roof, exterior enclosure, mechanical systems, and electrical systems were to be reused. This building would yield a net reuse value of approximately 47 percent in terms of replacement cost. Subtracted from that amount, however, would be the demolition costs, hazardous material removal or abatement, and other preparation necessary to make a renovated building comparable to a new building at a similar level of partial completion.

For a more comprehensive view of cost options, several other factors would also need to be weighed:

- the benefits of working in a structure that is already enclosed
- the benefits of working in a space that may already provide workers with efficient heat and easy access to water, power, and accessible paved driveways for hauling materials
- the time of year the improvement will take place relative to seasonal labor force availability and premiums
- the cost impact of scheduling work in a facility that continues to be occupied, which may limit the hours of the day during which certain construction activities can be carried out, require the construction of temporary entrances and exits, and entail extensive planning for the phasing of construction and occupancies over the course of the work

Construction phase. The management and oversight of the construction phase of a facilities improvement project are critically important. A typical project management team consists of the owner's representatives, the architect, and one or more prime builders selected through a competitive bidding process. Rural school facilities projects frequently provide opportunities to involve local builders and contractors. Small rural communities often appreciate the opportunity to employ local people, even for a short term. While the bidding process should always be competitive, local participation can be encouraged by letting area builders know of the opportunity in advance. Additional techniques, such as using a letter of credit in place of performance bond requirements (where allowed), can further encourage small local builders who cannot easily obtain bonding (or do not wish to do so).

Using community volunteers on a building project can produce mixed results. Volunteer labor can be used for some phases, but it is important to have professional supervision. At its worst, volunteer labor can create more problems than it is worth because a school district may have to hire experts to correct mistakes made by volunteers. At its best, volunteer labor will reduce project costs and provide a sense of pride in the community.

In managing the construction phase of addition/renovation projects, it is important to get off to a good start. Lines of communication are

essential among the owner's representatives, architects, and builders. Our firm's approach to getting started includes drawing up a detailed list of expectations in the notice of award letter to the successful builder, with copies distributed to the owner's representatives. An even more extensive agenda for a preconstruction conference should immediately follow the notice of award letter. The preconstruction conference allows all parties to discuss procedural items in detail to ensure a shared understanding of their meaning, and to create strong lines of communication. At this stage, it is not uncommon to have team-building sessions or partnering workshops, a technique that was first initiated by the Corps of Engineers. The core issues to be communicated in this early phase are that individual benefits to participation in the project are directly tied to the overall project success and the project's success depends on the active cooperation of all team members.

Commissioning the building and occupancy. An important step to take before occupying a newly renovated school building is the *commissioning of a building*. During this step the major mechanical and electrical systems within the building are tested and the full building goes through a significant period of ventilation to carry away undesirable gasses from volatile compounds used in some new building materials. Although reductions in building material off-gassing have been achieved recently, some people are highly effected by even small amounts. Therefore, it is important to make sure the building has been fully ventilated before occupation.

Because many school districts want to continuously occupy a school facility during additions and renovations, it is common to have phased occupancies as different parts of the building are completed. This approach allows some space to be available for the activities of the school while other areas are vacated for construction. Working in an occupied building requires tolerance for frequent changes in the school environment and a focus on safety for students and staff. Although students tend to be resilient to change, they may also stray into areas of the building to which they should not have access. These circumstances put extra demands on everyone for continuous feedback to allow for adjustments in routines and safety precautions.

The final phase of an addition or renovation project is *occupancy*. As a district is moving toward full occupancy of a recently completed

building, the need for full communication among the owners, architects, and builders continues. The phase when occupancy begins is called *substantial completion* and occurs approximately one to two months prior to *final completion*. During the completion phase the architects prepare lists that clarify for the builder what steps are necessary for final completion. It is advisable to include a knowledgeable owner's representative in the development of the checklists and the subsequent inspections. This record of the building status prior to occupancy is important in case problems or defects arise after occupancy.

Case Histories

Cambridge, Minnesota. Cambridge is a rural town that has experienced constant change and growth as a result of in-migration by formerly urban and suburban residents over the past 40 years. In the 1960s, Cambridge schools consolidated with the adjacent community of Isanti to nearly double in size. The continual development of addition, renovation, and replacement projects on one school site in Cambridge makes for a study in the impacts of population growth and a history lesson in architectural form.

The Cambridge School District was established in 1869 with a one-room schoolhouse serving 31 students in a primarily Scandinavian immigrant community. The original structure was replaced with two rooms, followed by additions, amounting to a total of five rooms serving 160 students by 1899. By 1906, the student population had risen to 255, and the original wooden building was replaced with an eight-classroom brick building. This building was still in use in the mid-1970s when this author first became familiar with school needs. Subsequent building additions and renovations are listed below.

Cambridge School Site Improvement List

1906 Original eight-room brick building

1918 Addition of high school

1936 Major high school expansion including gymnasium/auditorium with full stage

1951 Addition of kitchen, cafeteria, with classrooms above

1954 Addition of shop spaces

1957 Addition of shop and classroom

1960 Separate new elementary school built adjacent with streamline connections, high school varsity gyms as part of elementary school

1961 Addition of a music room and locker room

1967 Two-story classroom addition to elementary school

1976 Conversion of building to junior high school with construction of new remote senior high

1986 Conversion of shop space to district community education offices and refinishing of auditorium space

1989 Addition of elementary media center

1994 Addition of classrooms, circulation areas, kitchen and dining space with multiple renovations

Although the original elementary and high school buildings were replaced by the additions in the mid-1970s, the original cupola and bell tower from the elementary school were retained as a historical marker and located near the subsequent school additions. This connection with the past was important because it is likely that many current students had parents, grandparents, and even great-grandparents involved in similar pursuits at this site.

Additions in the 1970s connected the gaps formed by the removal of the two original buildings, provided timely improvements, greatly simplified the flow of student traffic, and provided a point of orientation through the central media center. Additions in the 1990s increased student capacity, further improved student flow, and created a connecting link with the elementary school. This link consists of a shared kitchen and separate dining spaces.

Site improvements in the 1990s also greatly simplified student bus loading, staff and visitor parking, and access to campus. The need for separate zoning of three areas—bus drop-off/pick-up, auto drop-off/pick-up, and auto parking—presented sizable challenges. It was difficult to retrofit a site that was originally designed for simpler transportation needs. Add in the factors of delivery vehicle traffic, easy access to playgrounds, and the separation of all traffic routes, and this amounts to a significant challenge in addition/renovation design. Vehicle and pedestrian traffic also need to be managed for after-hour

community activities, including athletics, night classes, and a variety of club and social events. Fortunately, we were able to creatively resolve the space issues presented by this historic school site.

McGregor, Minnesota. The case history of the McGregor district differs markedly from that of Cambridge in that the school facility is located in a remote, very sparsely populated portion of the state. McGregor Schools is one of only 12 Minnesota districts with less than one student per square mile. McGregor also differs in that its evolution and growth are happening much more slowly. Our experience with the district consisted of one engagement for substantial improvements.

The first school in McGregor opened in 1903. In 1972, school consolidation brought together several small, mostly one-room schools from the nearby communities of Clark, Haugen, Rat Lake, Lawler, Tamarak, Grayling, East Lake, and Cornish to create the current McGregor School District.

The existing McGregor school building, originally constructed in 1921, consisted of three levels with a central gymnasium/auditorium space. Subsequent additions included six elementary classrooms on one level to the south, library space above the kindergarten classroom, a kitchen to the west, and major high school expansion to the north.

In 1990, the school district was working to identify options to meet their increasing space needs after having conducted about six unsuccessful capital referendum bond campaigns. They decided to begin the process with an open invitation for design contributions, which presented, which led to proposal submission and the eventual selection of the our team.

At the first organizational meeting, ideas about changing the tone of a future referendum proposal were the main concern. It was determined that the architect would meet individuals in the homes or workplaces of approximately a dozen influential community members. From these visits, insights on past frustrations and possible new solutions began to emerge. Next, a school planning committee was established, effectively interweaving school staff members, community leaders, and parents (and several people with multiple roles). This group met on several occasions and engaged in the planning process outlined earlier in this chapter. The result was a well-defined

integrated sequence approach to facility improvement that received community support and bond issue passage.

New program needs defined in our 1991 effort included additional elementary classrooms, a new elementary media center, a space that could be used as an elementary gym/cafeteria/community room and replacement kitchen, locker space integrated with a student center for upper grades, a new boiler and renovated back-up system, and various miscellaneous improvements. In order to attach a new building to the existing structure, significant work was needed to bring the building up to code. Code-related construction included the establishment of a new fire-rated separation within existing building elements and between the new and existing buildings.

Upon successful passage of the referendum, a new priority was established by the school district. In their opinion, it would be many years before the community would approve other major building improvements. Thus, they wanted to maximize the amount of space that could be built with referendum dollars so the structure would be flexible enough to meet future needs. Two new classroom spaces were added and they were divided to allow for four special small-group activity spaces. This new space allowed several classes to be relocated and opened up other classrooms for music classes and other special uses. Another project planned to diversify existing space was the addition of a stage to the new gym/community room.

Renovation of the McGregor School, located in the middle of a large timber-producing area of the state, had unique goals. McGregor's leaders insisted that their new boiler burn wood chips to support local industry. This request required us to specify new boiler equipment, but our engineers wisely created the flexibility of back-up burner capabilities for gas. After an energy audit a few years ago, a switch to propane gas did occur, allowing considerable cost savings and reduced maintenance. The ability to return to burning wood chips remains, however, if energy costs dramatically change.

A recent review of activities in McGregor indicates that the school is the hub of community life with ever-expanding use for school-related and nonschool-related activities. Besides sponsoring traditional scouting, athletic, and club events, the McGregor School opens its doors to a variety of county assemblies, political party caucuses, community

breakfasts and dinners, and community education functions. Frequently the facilities are used for funeral and bridal receptions, and even occasionally for marriage and funeral services.

Besides providing a home for community activities, the current McGregor school hosts a number of programs that draw in local business and student participation. One example, Kids Plus, an independently funded grant program that coordinates group activities aimed at students who are not engaged in other traditional school activities. At the time of this writing, plans are also underway to institute local participation in Minnesota's school-to-work program, which offers financial encouragement to modest-size local industries to provide employment and student internships.

The 1991 additions have instilled new pride in the community. With computer, cable, and satellite TV connections in every classroom, elementary students have access to a wide range of resources. A new plan for the school includes a media center and convenient break-out spaces located outside the doors of 50 percent of the classrooms.

Since the completion of the addition/renovation project in 1991, the number of Native American high school students has risen from approximately 7 to 10 percent of the total population. Improving programs for these students is a special challenge to the school, as past graduation rates demonstrate. Recently, about 25 percent of Native American students graduated compared to 95 percent of the Anglo population.

The demographics of the McGregor community continue to change. In 1997, 47 new homes were built in adjacent lake communities to the north. New arrivals are often retired persons, but several are of working age and primarily employed in the summer recreation industries. New families with school-age children have brought new ideas, particularly in promoting technology applications within the schools. Currently five McGregor students participate in optional college enrollment programs (at college sites) that are offered to qualified students in Minnesota. Ten other students are obtaining credit for college courses through interactive TV programming in concert with 15 other rural schools in northern Minnesota.

Conclusion

As an alternative to new construction or consolidation, many communities are considering the option of retaining their existing schools, upgrading them through renovations, and providing community-sensitive and effective additions as needed. The feeling of being connected to one's community can be enhanced by the continuity of the community institutions, and in rural areas the school is an important community institution. The integrated sequence approach to an addition or renovation project is distinguished primarily by the commitment and effort applied to the analysis of the existing building and to integrating meaningful existing elements with new elements. The goal of this approach is to renew the existing building while providing continuity with the old building and a direction for the future. This approach to school facility improvement has already met with success in several rural communities and represents an exciting alternative for those rural districts that are considering new facility construction or school consolidation.

Notes

1. Gulliford, *America's Country Schools*.
2. Theobald, *Teaching the Commons*.
3. Sell, Leistritz, and Thompson, *Socio-Economic Impacts of School Consolidation*.
4. Herzog and Pittman, "Home, Family, and Community."
5. Theobald and Nachtigal, "Culture, Community, and the Promise of Rural Education," 134.
6. DeYoung and Howley, "Political Economy of Rural School Consolidation."
7. Cotton, *School Size*.
8. Houston, "Thinking Small Makes a Big Difference," 2.
9. Gulliford, *America's Country Schools*.
10. Bureau of the Census, *Historical Statistics of the United States*.
11. National Center for Education Statistics, *Common Core of Data*.
12. Cubberly, *Rural Life and Education*.
13. Gulliford, *America's Country Schools*; Sargent, *Rural and Village Schools of Colorado*; Foght, "Rural Education"; Agee, *Let Us Now Praise Famous Men*; Fuller, *Old Country School*; and Coles, "Foreword."

14. Minnesota State Department of Children, Families, and Learning, *School District Organizational Alternatives*.
15. *Goals 2000: Educate America Act*, Sec. 102.
16. Theobald and Nachtigal, "Culture, Community, and the Promise of Rural Education."
17. Beale, "Nonmetro Population Rebound."
18. Pooley, "The Great Escape."
19. Jacobs, *Death and Life of Great American Cities*, 2.
20. Minnesota State Department of Children, Families, and Learning, *Guide for Planning*.
21. Ibid., 45.
22. Ibid., 41.
23. Ibid., 47.
24. Peña, *Problem Seeking*.
25. Hammel, Green and Abrahamson, Inc., an architectural design and engineering firm, has offices in Minneapolis and Rochester, MN; Milwaukee, WI; and Sacramento, CA.
26. R. S. Means CMD Group, *Means Square Foot Cost Data*, 187.

References

Agee, James. *Let Us Now Praise Famous Men*. New York: Houghton Mifflin, 1941.

Beale, Calvin. "Nonmetro Population Rebound: Still Real but Diminishing." *Rural Conditions and Trends* 9(2): 20-27 (1991).

Bureau of the Census. *Historical Statistics of the United States, Colonial Times to 1970*. Bicentennial ed. Part I. Washington, DC: U.S. Government Printing Office, 1975.

Buresh, Bob. *School District Reorganization: Recent History and Trends*. Minneapolis: Minnesota State Department of Children, Family, and Learning, 1999. http://www.cfl.state.mn.us/TECH/reorg.htm

Coles, Robert. "Foreword" to *Education in Rural America: A Reassessment of Conventional Wisdom*, edited by Jonathan P. Sher. Boulder, Co: Westview Press, 1977.

Cotton, Kathleen. *School Size, School Climate, and Student Performance: Close-up #20*. Portland, OR: Northwest Regional Educational Laboratory, 1996. ERIC Document Reproduction Service No. ED 397 476.

Cubberly, Ellwood P. *Rural Life and Education*. Cambridge: Riverside Press, Houghton Mifflin, 1914.

DeYoung , Alan J., and Craig B. Howley. "The Political Economy of Rural School Consolidation." *Peabody Journal of Education* 67(4): 63-89 (1990).

Foght, H. W. "Rural Education." Bulletin No. 7. U.S. Department of the Interior, Bureau of Education. Washington, DC: Government Printing Office, 1919.

Fuller, Wayne E. *The Old Country School*. Chicago: University of Chicago Press, 1982.

Gulliford, Andrew. *America's Country Schools*. Niwot: University Press of Colorado, 1996.

Herzog, Mary Jean, and Robert B. Pittman. "Home, Family, and Community: Ingredients in the Rural Education Equation." *Phi Delta Kappan* 77(2): 18 (1995).

Houston, Paul. "Thinking Small Makes a Big Difference." *Leadership News* 173 (15 October 1996).

Jacobs, Jane. *The Death and Life of Great American Cities*. New York: Random House, 1961.

Minnesota State Department of Children, Families, and Learning. *Guide for Planning School Construction Projects*. Minneapolis: Minnesota State Department of Children, Families, and Learning. 1999

_____. *School District Organizational Alternatives: Background and Available Information*. Minneapolis: Minnesota State Department of Children, Families, and Learning, 1999. http://cfl.state.mn.us/FACILIT/orgalt.htm.

National Center for Education Statistics. *Common Core of Data (CCD): School Years 1993-94 through 1997-98*. NCES 2000-370. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, 2000.

Peña, William. *Problem Seeking: An Architectural Programming Primer*, 3d ed. Washington, DC: AIA Press, 1987.

Pooley, Eric. "The Great Escape." *Time*, 8 December 1997, 52-64.

R. S. Means CMD Group. *Means Square Foot Cost Data 1997*. Kingston, MA: R. S. Means Co., 1997.

Sargent, C. G. *The Rural and Village Schools of Colorado*. Fort Collins: Colorado Agricultural College, 1914.

Sell, Randall S., Larry F. Leistritz, and JoAnn Thompson. *Socio-Economic Impacts of School Consolidation on Lost and Vacated Communities*. Agricultural Economies Report No. 347. Fargo: North Dakota State University, Department of Agricultural Economics, 1996. ERIC Document Reproduction Service No. ED 423 100.

Sher, Jonathan P. "The Battle for the Soul of Rural School Reform." *Phi Delta Kappan* 77(2): 143-48 (1995).

Theobald, Paul. *Teaching the Commons: Place, Pride, and the Renewal of Community*. Boulder, CO: Westview, 1997.

Theobald, Paul, and Paul Nachtigal. "Culture, Community, and the Promise of Rural Education." *Phi Delta Kappan* 77(2): 132-35 (1995).

U.S. Department of Education. "President's & Secretaries' Priorities." Washington, DC: U.S. Department of Education, 1 April 1998.

CHAPTER 7

Managing the Rural School Facility Construction Process

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The decision to renovate or replace a school building is the starting point for a long and challenging journey. The journey includes many phases: planning, development, and project delivery and construction. Each phase requires different levels of expertise, skills, and activities. The challenge of a rural facility project is to find leadership to provide guidance through each phase of the project.

This chapter illustrates an approach to project management that can help the leadership of a school district successfully interact with the construction management team while facilitating open, respectful, and effective communication with local stakeholders. This approach, called the *project cost management system* (PCMS), has proven successful in rural school construction projects throughout Nebraska, Iowa, and South Dakota.[1] Key to the success of this approach is a project manager who has a good understanding of community needs and a good grasp of the technical aspects of school facility construction. This individual has responsibility for both developing community consensus and managing the technical details of the construction process. He or she provides a sense of continuity to the project, a key element often lacking in other approaches.

A Brief Overview of the Project Cost Management System

The first step in the PCMS approach to school facility improvement is to identify a project manager who will oversee all phases of the process. The project manager helps the school district and community consider their current and future needs, while developing a long-range, education-driven master plan for school facilities. The project manager also works with school district staff and committees in a series of workshops to develop plans and proposals, and may include conducting surveys and interviews to get input from them on curriculum-based needs. In addition, the project manager meets with community groups to develop community-based priorities. Information collected from all of these sources provides the basis for programming decisions and ultimately will lead to optimum facilities designs that receive support from taxpayers.

Once a master plan has been agreed upon, the project manager identifies appropriate next steps to complete the plan. After project phases have been identified and drafted, the project manager returns to all groups for more detailed feedback regarding stages of the planning and construction process.

When the project has been funded and the schematics and basic designs for the buildings are developed, the project manager assists in developing the bidding documents and ensures that there will be full competition for all aspects of the project from qualified architectural, engineering, and construction firms.

Once construction begins, the project manager represents the school district by monitoring the architect, the contractor, and the overall project. The project manager gives the district monthly construction project reports that include schematic milestones, a complete budget analysis, and photographic records of construction progress throughout the previous month. These reports are presented at open school board meetings to keep the district and public constantly abreast of progress.

This is the basic outline of the project cost management system. A fuller explanation follows.

The Planning Process

Various circumstances could motivate a school board to discuss what the future holds for the district's facilities: a visit from the fire

marshal, a newly enrolled student confined to a wheelchair, a recent asbestos report, a cracking foundation, or Title IX requirements. Or the community or students may signal their desire for facilities they can be proud of, feel safe in, and where contemporary curriculum can be effectively delivered. At some point the community decides they can provide something better for their children.

The school board is aware that the words "bond issue" and "tax levy" are not popular among rural residents, but they also know improvements must be made. The first choice the district must make is whether to repair or replace their school facilities, depending on the context of available resources. Although raising taxes is never anyone's first choice, often it can be accepted when the public understands the seriousness of the need.

Forming a facilities study committee. Once the school board has decided to investigate the possibility of new school construction, it usually chooses a volunteer group of community and staff members to form a facilities study committee. Committee members need not be certain supporters, but instead, simply citizens interested in education. As many segments of the community as possible should be represented, including professionals, laborers, small business owners, senior citizens, parents, and others. This group, along with the district staff, should go through a series of visioning sessions. The objective of this process is to identify facilities needs and to answer the following key question: What will we need to make this district effective and efficient for the twenty-first century? The goal is to devise a plan that provides state-of-the-art educational opportunities that meet the needs of students and give back to the community. When finished, the school facilities can help enhance the overall image of the district, which can contribute to keeping district graduates in the area to raise their families and to encouraging new people to move into the area.

The facilities study committee should tour current facilities. Although some committee members may be in the buildings every day, they may not be aware of certain code requirements or structural damage, which the project manager or other expert guide can point out during the tour. These tours tend to be eye openers for the members of the facilities study committee. So often the view looks fine from the street, and no one realizes there are problems that need

to be addressed. That perception changes when people see the view from the students' seats.

Identifying needs. Frequently, school code violations exist that must be corrected just to keep particular schools open. These issues should be given first priority, but then the committee should move beyond short-term repairs and solutions and consider making long-term changes that could enhance teaching and learning.

School and classroom designs have changed dramatically over the past 20 years, having reached new levels of sophistication to support advances in instructional methodology.[2] One observer compares our old schools to old locomotives chugging incongruously through a high-tech landscape.[3]

Research suggests that the transfer of learning is enhanced when the learning situation and the situation for which a student is being educated are similar.[4] However, we have allowed our schools to remain in the past, while our children must be educated for the future. Consequently, the schools are mismatched with today's children.[5] Older educational models called for children to be passive instead of active, incapable instead of capable, teacher-directed instead of self-directed, acquiescent instead of assertive, and dependent instead of independent.[6] However, the new model of learning is active, interactive, and integrated, rather than passive, isolated, and fragmented.[7] Today's educational facilities offer space for cooperative learning instead of desks placed rigidly in rows across the classroom. Today's teachers want students to explore, work in cooperative groups, get involved with hands-on activities, and discuss among themselves as they would in the real world. Children will not always have a teacher directing them from the front of a room. Thus, they need to develop self-sufficiency in a student-centered classroom, not a teacher-directed domain. The teacher in this arrangement becomes a valued member of a team, not the focus of the classroom.[8]

Technology issues are a major concern when considering facilities redesign or new facilities construction. Marvin J. Cetron and Thomas O'Toole have written extensively on the role of technology in accelerating the pace of change.[9] Networking and computer access for every student and teacher are now required for success in the twenty-first century. Education must develop students' technological competence to enable them to succeed in our electronically sophisticated culture.[10]

Code requirements, changing instructional methods and technologies, and other educational considerations should be identified by the facilities study committee, but that is only the beginning.

Seeking input. For a school facilities project to meet the needs of the community and cultivate broad-based support, broad-based staff and community input must be gathered. Important input comes from staff surveys, which the facilities study committee can distribute to all school district staff members, certified and noncertified. Staff feedback gathered from the surveys is shared with committee and school board members. People who work daily on the "front lines" have important perspectives. Survey responses help answer the question, What is needed to provide the highest quality education for our students? Teachers generally make do with what they have and go about the business of educating children as best they can. But when they have the opportunity to help design the structure of their classrooms, they begin to examine their instructional practices and are empowered to change.[11]

The facilities study committee should also seek input about community needs. Rural school buildings serve dual purposes: they must be conducive to learning and encourage community use. Creating such a shared facility magnifies school and community pride. Usually the public appreciates access to gyms, fitness centers, computer labs, assembly areas (such as an auditorium), and a commons area. Most importantly, as Doug Archbald explains, greater community involvement will likely increase the amount of learning taking place at home because parents will experience tangible connections to the school. Likewise, greater community involvement helps create a school environment in which children feel they are a part of a group that is interested in their overall well-being.[12] Facilities designed to serve so many community functions may be more expensive. However, residents also tend to feel they are getting something valuable for their tax dollars.[13] In rural areas, there usually are no alternative gyms or auditoriums for community use; school is the only option. Often teachers also appreciate these public opportunities, provided the academic wings are secured.

Other input can be obtained by asking teachers, staff, and school board members to compile their "dream lists." Some people have grown accustomed to getting by with less and need to tour recently

completed schools to see what is possible. At one time there may have been a question about whether electricity is a luxury or a necessity. Today some people ask comparable questions about computers and small group spaces.

Compiling dream lists, however, has to be tempered by budget realities. Information about tax levy options available to the district should be provided to facilities study committee members. Using that information, the project manager can prepare several options that meet a variety of "dreams" or needs within the constraints of a bond issue. Many dreams aren't so expensive when paired with others, or done during a large renovation project.

Committee members should investigate and compare the costs of renovating existing buildings with the costs of new construction. In an atmosphere of rising taxes and taxpayer resistance to the construction of new school buildings, it may be wise to explore the possibilities for making existing buildings more educationally effective.[14] Often the old school building is considered such a mainstay in the community that people resist losing it. Both options—renovation and new construction—should be presented, discussed, and analyzed thoroughly by the facilities study committee.

To ensure successful project delivery, there must be an achievable plan. An important aspect of this plan is understanding the operational costs of new or remodeled facilities. Districts must have a clear idea that they can afford to operate facilities they plan to build. This includes not just staffing costs but maintenance costs, as well.

The Development Process

The facilities study committee presents its findings to the school board and disbands. With board approval the development phase begins. The project manager compiles information from focus groups, staff surveys, and community input and develops a conceptual building plan that becomes the starting point for a series of design workshops. The design workshops take place over a four- to eight-month period. The workshops initially involve administrators, department heads, and team leaders, then usually expand to include the entire staff. Early meetings focus broadly on the "big picture," while meetings later in the first month focus on specific issues. Discussions during this period help refine the general organizational plan, identi-

fying academic, activity, and community-use areas. A good plan needs this solid foundation from which to build, and leaders should seek approval from all parties involved. This basic plan will set the parameters for each of the zones of the building.

The second and third months are when the separate zones of the building are further refined and the rest of the staff becomes involved. This is an exciting, dynamic period because, for the first time, teachers are asked to design their ideal teaching spaces. The limitations that they have learned to deal with are lifted, along with the artificial constraints that have been placed on their creativity. Unlike some urban or suburban teachers, who have opportunities to see innovations in magnet or newly constructed schools, many rural teachers' knowledge of current educational trends is limited to what takes place in their community or surrounding communities. For this reason, it is important that teachers have access to tours of other facilities, videos of new facilities, and other educational resources as they participate in the planning process.

The project manager encourages the participants to consider a wide range of learning modes, including self-directed and individually supported group learning. Participants are also encouraged to include spaces and opportunities for lifelong and continuous learning, including areas for physical, mental, and spiritual health.[15]

A crucial step at the end of each stage is reporting to the school board and other groups involved in the process. This is a time-consuming task, but well worth the effort because everyone stays informed, and it minimizes the changes needed late in the design or construction phase. The end result of the brainstorming, tours, videos, and research should be a school design that incorporates many innovative ideas, such as small group learning areas, classroom walls that move to create large group areas, and integrated computer networks. Distance learning classrooms, physical fitness labs, multipurpose community rooms, and large media centers are typically zoned to allow use of these areas by the community after hours.

When this process is done well, the new or remodeled school is able to reestablish its role as the focal point of the community and to strengthen the bond between the community and its children. This vibrant interaction can make the community young again and encourage young people to return to their rural roots after college. These

goals may seem too idealistic, but even if only some are attained, a positive impact is made on the rural community and school. For too long the design community has had ample work in urban areas and tended to neglect rural schools. Rural schools need not be just cookie cutter copies of urban schools, but vital centers that contribute to the quality of life of rural communities.

Developing Community Consensus

The most important issue in the facilities planning process is developing and nurturing community consensus. Educational change is not created by new tools alone. Real change happens when the community is brought together to collectively create a shared vision for redefining classroom learning.[16] Because an engaged community is more likely to support a bond referendum, it is important that the community be actively involved and fully informed throughout the entire process. Broad-based community input should come early in the planning process.

There are several ways to keep the community engaged. Initially, this can be accomplished with the school board, community, and staff focus groups, through which staff and community priorities are synthesized into a master plan for school facilities. Another technique is to keep the community informed as the facilities study and planning progresses. Newsletters, radio announcements, and strategic newspaper articles all provide information and opportunities for community response. Information should be clearly defined and easily understood. Issuing short, frequent press releases that highlight key issues is a useful tactic.

Public meetings held in workshop formats have also proven successful. Workshops use local experts to deliver the message instead of out-of-town consultants. This is only possible if community representatives are willing to lead rather than follow. Local experts, including a school board team, a teacher and administrator team, a financial leader team, and a design team can provide information about different aspects of the school facility planning process. These teams first listen to community members' questions and concerns, then discuss topics in team members' areas of expertise. Teachers and administrators listen and discuss their views on educational trends and facility needs. School board members can discuss school funding

issues. The local banker is in a perfect position to discuss bond markets, interest rates, and the benefits and deficits of long-term financing. The design team can discuss trends and possible solutions that allow for current program needs and flexibility for future needs. The input is one-to-one, a perfect way to truly listen and educate.

The Bond Referendum Campaign

Communication is the key to successful rural community bond initiatives. The best approach is to keep the message simple, communicate clearly, and inform the public instead of selling the public. It is very important to earn the trust of voting community members. One way to do this is to provide open, honest channels of communication. An important part of this strategy is finding community members who are willing to serve on a communications committee. Once identified, an active, talented group of community volunteers can play an important role in communicating information and winning community trust. Volunteers for bond referendum campaigns are not easily found or convinced to serve, but there are usually a few community members who feel passionately about the issue. These volunteers must be willing and able to present factual information clearly and then allow the public to settle the issue.

Referenda are political and therefore subject to the broad range of challenges associated with the general election process, such as frequent accusations of untruth, underestimations of costs, overestimations of costs, overestimations of needs, and hidden critical information. The only way to counteract these accusations is to communicate openly, clearly, and consistently throughout the campaign. To keep the message consistent, it is often best to have only one informational brochure, rather than several generations of brochures. The same brochure should also be used as a mailer. The message should be simple and focus on the educational issues, not the building. The brochure and other materials should emphasize the educational benefits of an upgraded school facility, not just the "gee-whiz" aspects of a new building. In order to effectively get the message across, volunteers should plan to do door-to-door canvassing, telephoning, and public meetings, if necessary. The end result arrives the night of the referendum with the final vote tally.

The Project Delivery and Construction Phase

Once the plan is in place and the funding has been approved, the project delivery and construction phase begins. District officials will have to make crucial decisions about personnel and materials costs. An experienced project manager can provide many important services during this phase of the project. While the school board will ultimately make the final decision about who to hire as a contractor, the project manager plays an important role in researching and making recommendations. In most cases, the contractor will be chosen by the board with input from the project manager. The project manager will also advise the board regarding construction costs.

School districts usually benefit when bidding is highly competitive. A project manager who acts in the district's best interest is open to a variety of bidding strategies and seeks to increase competition. Bidding strategies that carve up the project into smaller, more manageable chunks may be useful in some communities.

Once the plan for the construction process has been approved and the architect and contractor have been chosen, the actual construction of the building begins. The best way to ensure delivery is to have complete plans, with clear and consistent specifications. The construction process actually requires a great amount of technical management. This is where the project manager can once again make a great contribution. The project manager is the eyes, ears, and voice of the owner (which is the community), and has a vested interest in making sure the project is delivered as promised. We have found that employing a project manager in this process has frequently reduced unexpected change orders throughout the construction period. With experienced project management, the final product is more likely to meet the specifications of the plan and come in with few budget problems.

Conclusion

The process of designing and building a rural school facility is long and complicated. The school design must be developed with community input and must reflect school and community educational needs, while taking into account the limitations of the district's budget.

The authors have had a great deal of success with the project cost management system outlined in this chapter. A key element in this

approach is the project manager, a technically skilled and knowledgeable individual who has experience with the school facility design and construction process and is willing to protect the school district's interest. This individual provides continuity and an institutional memory for the entire facility construction process. A successful school facility construction or renovation process can transform an entire rural community and school district. Designing effective rural schools is a challenge that provides lasting rewards when community priorities have been satisfied.

Notes

1. This process was pioneered by RAPM, Inc., located in Omaha, Nebraska.
2. Castaldi, *Educational Facilities*.
3. Dixon, "Future Schools and How to Get There From Here," 360-65.
4. Castaldi, *Educational Facilities*.
5. Strommen and Lincoln, "Constructivism, Technology, and the Future of Classroom Learning."
6. Dixon, "Future Schools and How to Get There From Here."
7. Lenox and Walker, "Information Literacy."
8. Strommen and Lincoln, "Constructivism, Technology, and the Future of Classroom Learning."
9. Cetron and O'Toole, *Encounters with the Future*.
10. See note 5.
11. Merwin, "Classroom of the Future."
12. Archbald, "Restructuring in the Eyes of Practitioners."
13. Day, "Trends in School Design."
14. Castaldi, *Educational Facilities*.
15. Banathy, "Systems Design in Education."
16. Riel, "Building a New Foundation for Global Communities."

Bibliography

Archbald, Doug. "Restructuring in the Eyes of Practitioners: An Analysis of 'Next Century' School Restructuring." *International Journal of Educational Reform* 2(4): 384-98 (1993).

Banathy, Bela H. "Systems Design in Education: Forming the Future." *NASSP Bulletin* 76(542): 71-79 (1992).

Castaldi, Basil. *Educational Facilities: Planning, Modernization, and Management.* Boston: Allyn and Bacon, 1987.

Cetron, Marvin J., and Thomas O'Toole. *Encounters with the Future: A Forecast of Life into the 21st Century.* New York: McGraw-Hill, 1982.

Day, C. William. "Trends in School Design." *Learning by Design* (1997): 4-6.

Dixon, R. G. Des. "Future Schools and How to Get There From Here." *Phi Delta Kappan* 75(5): 360-65 (1994).

Friedland, Stan. "The Essential Elements for Success." *The High School Magazine* (March 1994): 29-33.

Lenox, Mary F., and Michael L. Walker. "Information Literacy: A Challenge for the Future." *NASSP Bulletin* 78(562): 57-72 (1994).

Merwin, J. "The Classroom of the Future: Changing the Way We Do Business." *NASSP Bulletin* (1993): 111.

Riel, Margaret. "Building a New Foundation for Global Communities." *The Writing Notebook* 7(3): 35-37(1990).

Strommen, Eric F., and Bruce Lincoln. "Constructivism, Technology, and the Future of Classroom Learning." *Education and Urban Society* 24(4): 466-76 (1992).

While the condition of rural school facilities varies across the country, most rural school districts face similar issues as they consider new facility construction, renovations, or additions:

- How to gain public support for funding
- How to make the best use of local resources
- How to design buildings that are useful to the community in a variety of capacities
- How to design renovations or new buildings that optimize instruction and use of technology

This book provides an overview of each of these issues and offers inspiring case studies of communities that have worked against the odds and succeeded.

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ISBN 1-891677-05-5

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